



Monthly Statistical Report

Prepared by the Finance, Accounting, and Statistics Department

Vol. 13, No. 10

NOVEMBER 15, 1989

OCTOBER 1989

SUMMARY

The weakness displayed in the third quarter's deliveries decline continued in October, for which deliveries dropped 2.9 percent year-to-year. All major products contributed to the decrease.

The recent declines in deliveries, and the corresponding weakness in consumption, are partly the result of fuel switching and lagged effects of price increases earlier this year. However, economic growth, which according to current estimates slipped to 2.5 percent (quarter to quarter) in the July-September period from an average 4.4 percent last year, is believed to have continued to slacken more recently, further slowing petroleum consumption growth.

The largest decline in deliveries was for residual fuel oil, which fell 244 thousand B/D or more than 18 percent in a continuation of the fuel-switching-related reversal of the last several months. Gasoline deliveries slipped 0.3 percent for the month, following the third quarter's decline, a further indication of gasoline consumption's recent weakness. Deliveries for the "other oils" category also dropped, falling 4.0 percent.

Kerosine jet fuel deliveries, though falling 2.6 percent in October, did this after an unusually large increase the month before; data on air traffic indicates that actual consumption may even have been increasing slightly. For distillate deliveries as well, October's 0.7 percent decline contrasts with what appears to be a continued moderate growth trend in

consumption. The decline coincided with weather significantly warmer than last October.

Overall, underlying consumption of petroleum products, even excluding residual fuel oil, appears to have continued the flatness estimated for the third quarter. This represents a shift from the upward trend in consumption (excluding residual fuel oil's swings) which had continued since the early 1980s.

Meanwhile, imports have continued to rise despite the weakness in deliveries. For the year to date, imports have risen by over 9 percent, in large part because of the accelerated drop in domestic crude oil production this year. The decline continued in October, with crude oil output falling more than 550 thousand B/D or nearly 7 percent from one year earlier.

Turnarounds slowed refinery operations in October, following September's higher-than-usual level of processing for that time of year. However, though declining seasonally from recent prior months' levels, input to distillation units was still 1.7 percent higher than for one year earlier. Distillate output rose 2.7 percent over last October, while distillate stocks declined 3 million barrels—an inventory pattern which has been typical in recent years. Typically, operations have been reduced as refineries undergo fall turnarounds in order to prepare for higher distillate production in November and December, while seasonal heating oil demand has already begun to pick up. Total inventories rose 3 million barrels, about average for the month.

PRODUCT SUPPLIED^W

Gasoline

WEAKNESS CONTINUES.

The third quarter's weakness in gasoline deliveries was maintained in October, with deliveries

for the month declining 0.3 percent. This, along with the weakening indicated by data on miles traveled, suggest that underlying consumption has been flat or even declining in recent months.

Travel growth, which, in response to higher prices and slower economic growth, had slowed by a percentage point from last year's rate to around 2.5 percent by midsummer, seemed to show an uptick in August to about 3 percent. However, this was against year-ago levels which were unusually low for the month; we estimate an increase of 0.5 to 1 percent more accurately represents underlying travel growth for that month.

Travel more recently has likely continued to be weak. Because improvement in fuel efficiency of the overall fleet has continued as newer vehicles' efficiency continues to exceed that of those being replaced, this would indicate a small year-to-year decline in gasoline consumption in recent months.

API ESTIMATES

	OCTOBER		YEAR-TO-DATE	
	Million B/D	Percent Change	Million B/D	Percent Change
Total domestic deliveries	17.1	(2.9)	17.1	(0.2)
Crude production ^W	7.5	(6.9)	7.6	(6.4)
Total imports ^W	8.2	5.7	8.0	9.4
Stocks (million bbl) ^W	1,093	1.7	ns	ns

Distillates
WARMER WEATHER
TRANSLATES INTO
A DECLINE.

Distillate deliveries' decline in October was primarily the result of weather substantially milder than last October's cold snap. If the 0.7 percent decline were adjusted for weather more than 25 percent warmer than a year ago, this October's deliveries would have risen an estimated 2 to 3 percent. Consumption indicators, however, suggest underlying growth of about half that rate.

For the residential and commercial sectors, consumption is believed to have declined versus last October by perhaps 100 thousand B/D because of the warmer weather. On-highway usage is estimated to have been growing at only around 2 or 3 percent, in line with this year's slower economic growth, while industrial usage has likely grown less than that because of fuel switching opportunities in some cases.

Rail ton-miles continue to show small year-to-year declines, and the remaining sectors have also likely contributed little to distillate demand growth. Thus, it would appear that moderate consumption growth was more than counterbalanced in October by the effects of warmer weather and actual usage probably declined, year to year.

Residual Fuel Oil
ANOTHER
SUBSTANTIAL
DECREASE.

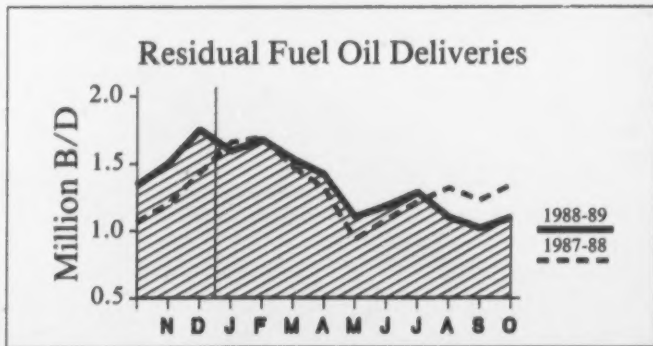
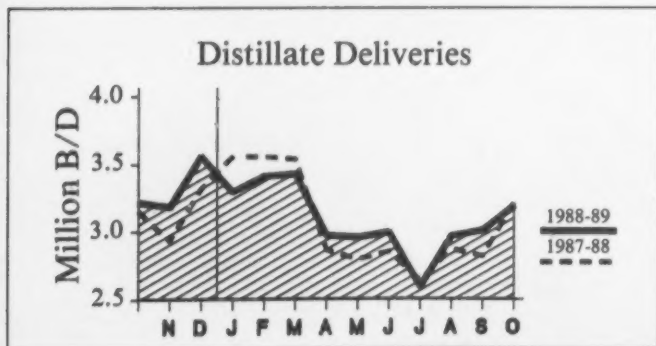
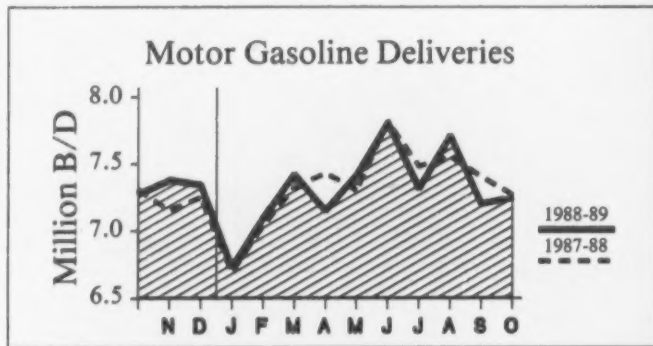
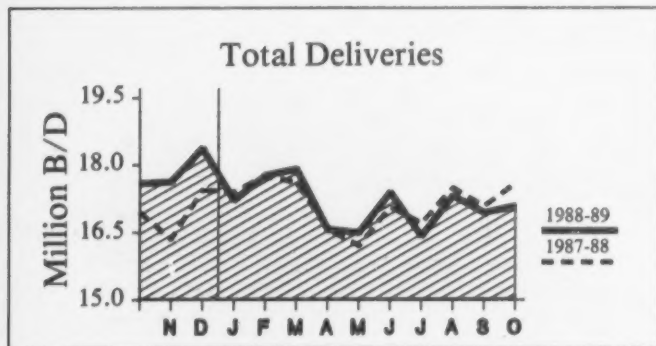
Residual fuel oil deliveries dropped substantially in October for the third month in a row, falling 18.2 percent versus a year ago. Fuel-switching to competitively-priced natural gas among electric utility and industrial users has continued to depress deliveries to these sectors. Domestic bunker deliveries, however, may have benefited from a price advantage versus foreign sources.

The most recent swings in residual fuel oil deliveries are typical of the pattern over the last several years, which have included annual increases and declines frequently in the double-digit range. However, these swings mask the fact that since 1983, annual residual fuel oil deliveries have remained in roughly the 1.2 to 1.4 million B/D range, with much of the year-to-year ups and downs attributable to fuel switching in the electric utility and industrial sectors. (Residual fuel oil usage had been as high as 3 million B/D in the late 1970s before higher oil prices induced long-term switching and conservation in many usage sectors.) Last year's deliveries had been near the upper end of that range, at 1.38 million B/D; the most recent deliveries data, if adjusted for normal seasonal variation, suggest that usage in the past several months has slid to near the bottom of that range.

Kerosine Jet Fuel
DECLINE FOLLOWS
SEPTEMBER'S JUMP.

Following September's unusually large gain, October's kerosine jet fuel deliveries fell 2.6 percent. Despite fluctuations in deliveries such as these, changes in air traffic have been less volatile, if not necessarily of as large a magnitude as deliveries changes. Growth in miles flown had dropped off earlier this year, with little if any growth around mid-year. More recently, however, there appears to have been a slight recovery in traffic growth, with more recent increases perhaps in the 1 to 2 percent range.

Over a longer period, deliveries growth has nearly matched that of air traffic. Miles flown by the commercial fleet have risen an estimated 1.5 percent for the year to date, while deliveries have risen about 2 percent.



Other Oils **DELIVERIES** **FALL AGAIN.**

Deliveries of other oils fell an estimated 4.0 percent versus last October, continuing the pattern of declines of the last several months.

Demand for petrochemical feedstocks continues to be weaker, and operational problems at some plants have no doubt contributed as well. Ethane deliveries had been on the decline

for much of this year due to relative feedstock economics; other feedstocks have also apparently experienced weakness more recently.

With October's weather much warmer than a year ago, propane deliveries for heating purposes would also be expected to have dropped from last year. These developments, combined with other indicators, suggest that underlying consumption of "other oils" was likely flat to down for the month.

SUPPLY

Production **CRUDE PRODUCTION'S** **DECLINE CONTRASTS** **WITH NATURAL GAS.**

In a continuation of this year's more rapid decline, October's crude oil production dropped nearly 7 percent or more than one half million B/D from one year earlier. Lower 48 production fell an estimated 7.1 percent or nearly 430 thousand B/D. Alaskan production, maintaining that state's more recent decline trend, also fell at close to the same percentage rate, dropping 6.3 percent or nearly 130 thousand B/D.

Though crude oil production has been declining steadily since early 1986, natural gas output has experienced some recovery in the past several years. Marketed production of natural gas rose 6 percent from 1986 to 1988, with government estimates for 1989 showing steady output so far for this year.

Much of the increase has come from already-existing production capacity; however, natural gas drilling has also been showing some recovery. For the first three quarters of this year, API estimated gas completions were up about 13 percent, contrasting with oil completions' 29 percent drop. At least part of the 9 percent increase in well servicing during the third quarter is likely attributable to gas activity as well.

The rise in gas completions followed last year's nearly 8 percent increase, which, according to API's just-released *Survey on Oil and Gas Expenditures*, was one major reason that expenditures for drilling and equipping wells rose nearly 14 percent in 1988. Overall, upstream expenditures rose about 13 percent, with increases for the acquisition of undeveloped acreage and for enhanced recovery projects also contributing to the rise.

Imports **IMPORTS RISE BY** **TWO THIRDS IN** **FOUR YEARS.**

Though deliveries growth has slowed this year, imports have continued to increase because of declining domestic crude oil production. October's imports maintained the over-8 million B/D level of the past several months—raising the year-to-date average to nearly 8 million B/D as well. For the first ten months, total imports have increased by 9.4 percent from a year ago and by fully two thirds since 1985's same-period average of 4.8 million B/D.

A net inventory draw in that year and a net accumulation so far this year mean that actual import growth calculated for the period exceeded the underlying trend; even so, if inventory patterns had been the same for both years, imports still would have risen more than 50 percent over the past four years.

Despite the continued high level of imports overall in October, product imports again declined versus one year earlier, by 9.3 percent or more than 200 thousand B/D. Residual fuel oil imports dropped by about 130 thousand B/D to 472 thousand B/D, towards the lower end of the typical range for imports of that product in recent years.

Kerosine jet fuel imports also dropped by 80 thousand B/D, while distillate imports remained about even at approximately 330 thousand B/D. Imports of gasoline and blending components, however, were relatively strong, rising more than 100 thousand B/D to over 500 thousand B/D.

Refinery Operations **OPERATIONS DOWN** **FROM SEPTEMBER,** **UP FROM A YEAR AGO.**

The typical autumn downturn in refinery activity, delayed in September as input to distillation units remained at 14 million B/D, was evident in October. Input to distillation units was off by half a million B/D from the prior month—though still exceeding year-ago input by 1.7 percent. Utilization as traditionally calculated averaged nearly 87 percent for the month, while utilization of capacity in actual operation amounted to roughly 90 percent.

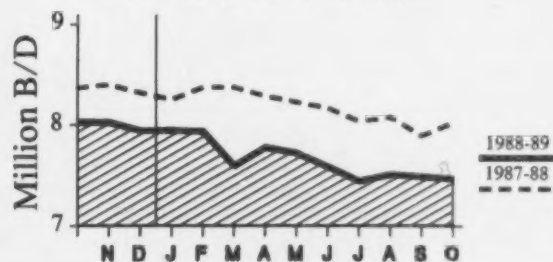
Gasoline production rose 0.9 percent, and distillate, 2.7 percent, over last October. Residual fuel oil output jumped nearly 16 percent, corresponding with temporary disruptions in product import sources following hurricane Hugo as well as downtime for some domestic conversion units.

Inventories **DISTILLATE'S** **DECLINE TYPICAL** **FOR OCTOBER.**

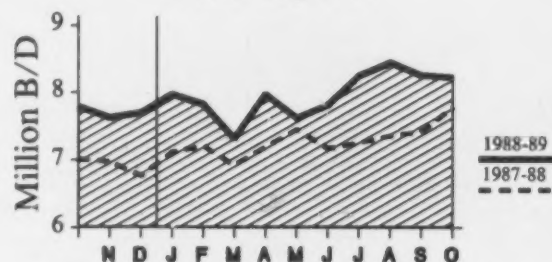
Total inventories rose 3 million barrels over the month, about average for October. Gasoline stocks dropped 2 million barrels; distillate inventories declined 3 million barrels, a decrease fairly typical for recent Octobers. Fall turnarounds, undertaken to prepare for higher distillate production in November and December, have typically reduced refinery operations early in the season when heating oil demand has already begun to rise.

The diminished role of inventories in heating season supplies of distillate in recent years has been evident in early-season inventory levels, which have trended downwards during the 1980s. This October's ending level of 120 million barrels, though down 8 million barrels from last October, was roughly equal to the recent-year October low of two years ago.

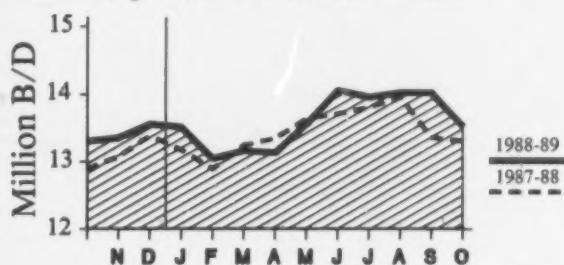
Crude Oil Production



Total Imports



Input to Distillation Units



Total Inventories



- 1/ Total supply, i.e., production plus imports adjusted for net stock change is equal to total products supplied from primary storage. Total products supplied from primary storage less exports is equal to total domestic products supplied. Information contained in this report is derived from information published in the API Weekly Bulletin and is based on historical analysis of the industry. All data reflect the most current information available to the API and include all previously published revisions.
- 2/ Includes lease condensate.
- 3/ API data do not include crude oil imported for the Strategic Petroleum Reserve (SPR) nor crude oil stocks held in the SPR (according to the U.S. Department of Energy, the SPR held approximately 578 million barrels as of October 31, 1989).

ESTIMATED UNITED STATES PETROLEUM BALANCE

(Daily Average in Thousands of 42 Gallon Barrels)

Products Supplied/Supply From Primary Storage	OCTOBER			YEAR-TO-DATE		
	1989 ¹	1988 ²	% Change	1989 ^{3M}	1988 ²	% Change
Products Supplied:						
Total motor gasoline	7,247	7,271	(0.3)	7,311	7,332	(0.3)
Finished leaded motor gasoline*	636	1,283	(50.4)	868	1,375	(36.9)
Finished unleaded motor gasoline*	6,611	5,988	10.4	6,443	5,957	8.2
Naphtha-jet	252	214	17.8	210	210	-
Kerosine-jet	1,244	1,277	(2.6)	1,255	1,229	2.1
Distillate fuel oil	3,194	3,218	(0.7)	3,081	3,071	0.3
Residual fuel oil	1,099	1,343	(18.2)	1,300	1,327	(2.0)
All other oils ⁴	4,178	4,354	(4.0)	4,114	4,127	(0.3)
Reclassified ⁵	- 141	- 97	45.4	- 172	- 156	10.3
Total domestic products supplied	17,073	17,580	(2.9)	17,099	17,140	(0.2)
Exports	873	732	19.3	856	806	6.2
Total products supplied	17,946	18,312	(2.0)	17,955	17,946	0.1
Supply:						
Domestic production:						
Crude oil ⁶	7,469	8,023	(6.9)	7,647	8,171	(6.4)
Natural gas liquids	1,544	1,661	(7.0)	1,585	1,620	(2.2)
Other supply ⁷	793	864	(8.2)	933	892	4.6
Total domestic supply	9,806	10,548	(7.0)	10,165	10,683	(4.8)
Imports:						
Crude oil, total ^{10/}	6,160	5,508	11.8	5,774	5,048	14.4
Canadian	567	654	(13.3)	614	681	(9.8)
Other	5,593	4,854	15.2	5,160	4,367	18.2
Products, total	2,068	2,279	(9.3)	2,198	2,241	(1.9)
Residual fuel oil	472	603	(21.7)	607	597	1.7
Other	1,596	1,676	(4.8)	1,591	1,644	(3.2)
Total imports	8,228	7,787	5.7	7,972	7,289	9.4
Total supply	18,034	18,335	(1.6)	18,137	17,972	0.9
Stock change, all oils	+ 88	+ 23	XXXX	+ 182	+ 26	XXXX
Refinery Operations						
Input to crude oil distillation units	13,526	13,304	1.7	13,599	13,445	1.1
Operable capacity	15,576	15,946	(2.3)	15,660	15,930	(1.7)
Refinery utilization (%) ⁸	86.8%	83.4%	4.1	86.8%	84.4%	2.8
Crude oil runs	13,337	13,126	1.6	13,423	13,242	1.4
Stocks (millions bbls.)	1989			1988 ²	% Change from ...	
	Oct. 31 ⁹	Sep. 30 ⁹		Oct. 31	Previous Month	Year Ago
Crude oil ^{10/}	342.5	334.4		339.6	2.4	0.9
Unfinished oils	111.1	105.2		109.0	5.6	1.9
Total motor gasoline**	222.2	224.3		217.7	(0.9)	2.1
Finished leaded motor gasoline*	20.1	21.7		38.7	(7.4)	(48.1)
Finished unleaded motor gasoline*	163.8	162.1		141.7	1.0	15.6
Naphtha-jet	6.0	7.0		6.3	(14.3)	(4.8)
Kerosine-jet	43.4	40.4		40.8	7.4	6.4
Distillate fuel oil	120.0	122.6		128.2	(2.1)	(6.4)
Residual fuel oil	49.8	44.9		42.5	10.9	17.2
All other oils	198.0	211.5 ^{10/}		190.3	(6.4)	4.0
Total all oils	1,093.0	1,090.3 ^{10/}		1,074.4	0.2	1.7

1/ Based on API estimated data converted to a monthly basis.

2/ Source: U.S. Department of Energy.

3/ Source: January-August, U.S. Department of Energy, September-October, API.

4/ Includes crude losses.

5/ Beginning with January 1981, U.S. Department of Energy began using a new data collection system which encompasses a method to ascertain the amount of product reclassified during the production phase. So that there will be no double counting of these volumes, they are subtracted from total domestic products supplied.

6/ Includes lease condensate.

7/ Includes Unaccounted-for crude oil, Field production of other hydrocarbons and alcohol, and Processing gain.

8/ Represents "Input to crude oil distillation units" as a percent of "Operable capacity."

9/ Derived by interpolating API weekly stocks data.

10/ Data do not include oil imported for the Strategic Petroleum Reserve (SPR) nor crude oil stocks held in the SPR.

R/ Revised.

* Included in motor gasoline.

** Includes finished leaded, finished unleaded, and motor gasoline blending components stocks.



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NOVEMBER 1989

SUMMARY

Total deliveries' year-to-year declines continue to accumulate for 1989, with November's 1.7 percent decrease the fifth monthly drop in a row so far this year. The only major product to show an increase was kerosine jet fuel; distillate fuel oil deliveries were flat, while deliveries of gasoline, residual fuel oil, and "other oils" all continued the declines of recent months. These developments strengthen the evidence that the upward trend in consumption which has persisted since the early 1980s has shifted in the latter part of 1989 to one that is flat at best.

Despite the recent weakness in demand, the dropoff in domestic crude oil production has still exceeded the deliveries decline, so that the trend towards higher imports has been continuing. For November, crude oil production fell over 540 thousand B/D, with Alaskan production contributing 95 thousand B/D to the decline.

Imports dipped slightly from the prior month's level as inventories were drawn upon more than usual for November, but were still up by 5.4 percent or 410 thousand B/D from a

year ago. For the year to date, imports have risen 8.6 percent or more than 600 thousand B/D.

Refining activity in November decreased slightly from October's level, contrary to the usual seasonal increase observed in recent years; input to distillation units, however, was still up 0.7 percent from one year earlier. Distillate production rose 5.3 percent to over 3 million B/D, continuing recent months' pattern of year-to-year output increases.

November's 6 million barrel decline in total inventories also contrasted with the more common seasonal increase. Crude oil stocks, however, rose to 353 million barrels, the highest level since mid-1988. For distillate stocks, the month-end level of 123 million barrels was one of the lowest levels for November in many years. However, data for recent years shows that inventory drawdowns have played a relatively small part in the winter supply picture and that the refining industry has normally not been called on to produce distillates at maximum rates during the peak of the heating season.

PRODUCT SUPPLIED¹

Gasoline

DELIVERIES DROP AGAIN.

Gasoline deliveries, having declined year to year for almost every month since April, fell

again in November by 1.4 percent. The effects of higher prices have been at least partly responsible for the weakness in deliveries over the period. Because of the roughly 20 cent increase in retail prices during the first five months of the year—attributed to a lagged response to the earlier rise in crude oil costs—inflation-adjusted pump prices reached a level about 11 percent higher in May than for one year earlier.

Since that time, retail prices have drifted downwards, falling by about 10 cents per gallon over the past six months. By November, inflation-adjusted retail prices were only an estimated 2 to 3 percent above a year ago. Based on past experience, it would be expected that any lagged effects of the earlier price rise on consumption would by now be diminishing.

In fact, the effect of the retreat in retail prices has already been apparent in a related area, namely, premium unleaded's market share. Premium, which had lost about 3 percentage points of its early-1989 share of 25 percent as some consumers had shifted to lower-priced alternatives, is estimated to have

regained about half of that loss by November. Premium's share may also have been held back by the increasing availability of midgrade unleaded, whose share is currently estimated at 8 to 9 percent.

But while the downward influence of retail prices on consumption has been receding, the effect of the economy's slowing growth has apparently been increasing. The third quarter's growth is now estimated to have slowed to 2.7 percent (quarter to quarter) from 4.4 percent last year; by most estimates, the fourth quarter's growth has so far been even smaller, though by how much remains less clear. Despite the uncertainties, it is apparent from the deliveries data that gasoline consumption has flattened and may even have declined slightly in recent months.

API ESTIMATES

	NOVEMBER		YEAR-TO-DATE	
	Million B/D	Percent Change	Million B/D	Percent Change
Total domestic deliveries	17.3	(1.7)	17.1	(0.5)
Crude production ²	7.5	(6.8)	7.6	(6.6)
Total imports ³	8.0	5.4	7.9	8.8
Stocks (million bbl) ⁴	1,088	1.4	na	na

Although gasoline accounts for more than two thirds of petroleum products used for transportation, it has contributed little to the overall growth in transport fuels over the past decade, as the accompanying background article points out (see page 5).

Distillates CONSUMPTION GROWTH APPEARS TO MODERATE.

Distillate deliveries for the month were unchanged from last November, while other indicators continue to suggest only minor growth in consumption. The comparison with year-ago deliveries is complicated by several partially-compensating factors, however. Last November's deliveries were perhaps 120 thousand B/D higher than would have been expected based on weather and the then-existing trend, depressing this November's calculated year-to-year change.

However, weather this November, mainly because of a cold snap towards the end of the month, was roughly 10 percent colder than the relatively mild November a year ago. This is estimated to have boosted deliveries this November by nearly enough to compensate for the anomaly in year-ago deliveries, so that, adjusted for these two complicating factors, deliveries would have risen by perhaps half a percent.

If there is growth to be found among distillate fuel oil's end-use sectors, it is not likely to be in heating demand. Residential and commercial use has been relatively stable in recent years, usually running at 760 to 770 thousand B/D annually. Except for temporary weather effects, there is little reason to believe that this has changed significantly this year. On-highway diesel

and industrial usage, which had been contributing to distillate fuel oil's growth earlier, have apparently been moderated by the recent slowing in the economy's growth rate. Thus, it appears that underlying consumption most recently has been running around 1-1.5 percent.

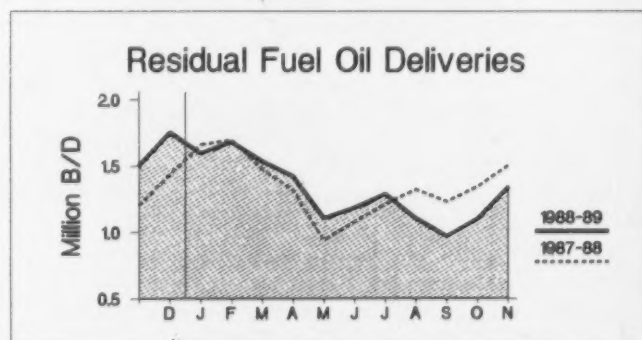
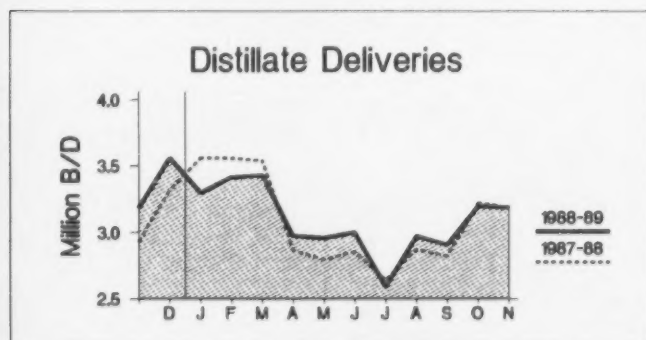
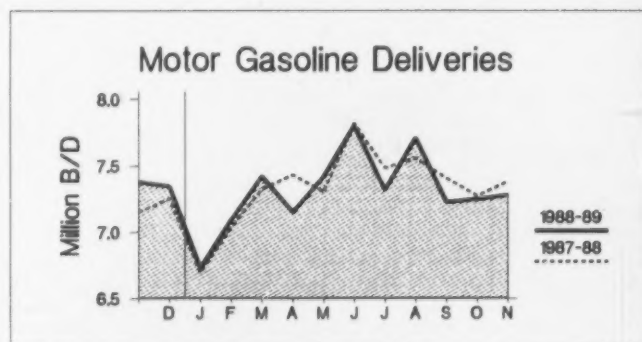
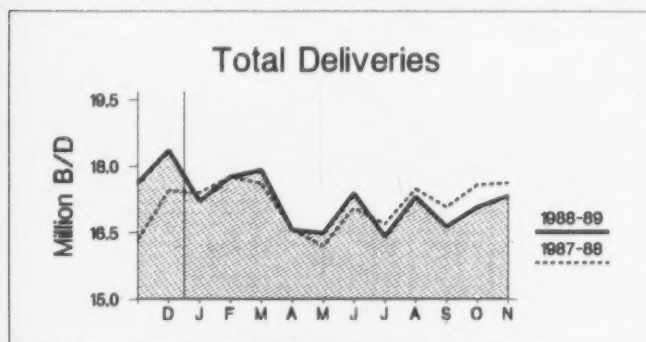
Residual Fuel Oil DOWN, BUT BY LESS, FOR NOVEMBER.

Though a drop in deliveries of 10.8 percent would not likely be described as a sign of strength, it is still less of a decline for residual fuel oil than the decreases in the 15 to 20 percent range of the previous three months. In fact, were it not for the exceptional strength in deliveries late last year, this November's residual fuel oil deliveries would have been the highest for the month since 1986.

With spot gas prices rising by month-end to around \$2 per mcf in some cases, fuel substitution appears to have been moving in the direction of residual fuel oil in the utility and industrial sectors. Colder weather than last year likely contributed further to increased residual fuel oil usage at eastern utilities towards the end of the month. In vessel bunkering, some markets were apparently still benefiting from a price advantage over foreign sources.

Kerosine Jet Fuel INTERNATIONAL TRAVEL BOLSTERS CONSUMPTION.

The vacillations in kerosine jet fuel deliveries of the past several months continued in November. Deliveries had been



up strongly in September, down in October, and now, for November, up again by 6.1 percent. Air traffic growth, however, has apparently been moving along slowly but steadily, with the rate of increase in miles flown running at an estimated 1 to 2 percent.

What growth there is in air traffic continues to be attributable more to foreign than to domestic operations. Miles flown domestically in recent months are estimated to have been more or less flat versus one year earlier, while travel involving international destinations has continued to make gains on the order of 10 percent, year to year. Though these recent gains in international traffic have still been strong, they represent a significant falloff from last year's 17 percent average growth rate.

SUPPLY "

Production

ALASKA AND LOWER 48 BOTH DROP.

Domestic crude oil production continued to fall in November, dropping more than half a million B/D or 6.8 percent versus one year earlier. Lower 48 production fell nearly 450 thousand B/D or 7.5 percent, while Alaskan production fell by 95 thousand B/D or 4.7 percent. Because of both the reversal of Alaska's previous upward trend and an acceleration in the lower 48's decline, the dropoff in domestic production this year has been running at more than double the rate of last year's 210 thousand B/D decline.

Imports

PRODUCTS FALL, BUT TOTAL RISES.

Total imports remained above 8 million B/D in November, although they dipped slightly from the prior month as inventories were drawn down at a rate of almost 200 thousand B/D. Year to year, the month's imports were up 5.4 percent or 410 thousand B/D.

Distillate imports, at 320 thousand B/D, nearly reached last November's high level. But for products overall, imports were off 25 percent from the unusually strong level a year ago. For the year to date as well, product imports' decline of about 5 percent or a little over 100 thousand B/D, year to year, partly reflects the strength of product imports last year.

Prior to last year, growing domestic demand had helped to boost product imports by roughly 75 thousand B/D per year, on average. Last year, however, product imports jumped nearly 15 percent or almost 300 thousand B/D. This year's year-to-date product imports, as currently estimated, are roughly in line with the earlier trend, having risen approximately 185 thousand B/D versus the same period two years ago.

It should be noted that there has been a tendency for Department of Energy data on product imports (which make up

Other Oils

DEMAND'S WEAKNESS CONTINUES.

November's 2.9 percent, year-to-year decline in deliveries of other oils was smaller than the decreases for previous months, but there is little reason, given the underlying fundamentals, to believe that the smaller decline signifies a change in underlying consumption's weakness.

Though colder weather than last November likely boosted propane demand in November, the deceleration in economic growth during the past several months has had a broad effect on the demand for many of the products derived from petroleum-based petrochemical feedstocks, for which demand continues to be weak. Slower economic growth has also likely softened demand for other products in the "other oils" category as well. With year-to-year gains in refinery activity having slowed in November, the refinery gas portion of the "other oils" balance (averaging nearly 700 thousand B/D so far this year) has likely also moderated. All of these factors suggest that the demand for "other oils" has continued to decline unabated.

the bulk of the 1989 year-to-date figure) to be revised upwards when the final data are published the following year. As a result of the uncertainty that this adds to currently available data, it is possible that this year's product imports (and hence, product deliveries) could ultimately turn out to be higher than the current data show.

Refinery Operations

DISTILLATE YIELDS UP FROM A YEAR AGO.

Refinery activity in November, contrary to the seasonal increase which has been common from October to November, dipped slightly from the prior month—and compared with a year ago, input to distillation units, partially reflecting the weakness in deliveries, rose only 0.7 percent. Still, utilization of operable capacity averaged over 86 percent for the month, or about 89 percent if calculated on the basis of capacity in actual operation.

Reflecting the softness in gasoline deliveries, output of that product dropped about 1 percent from last November. Distillate production, however, rose 5.4 percent. The large gains in residual fuel oil production for October continued in November, with output jumping nearly 20 percent, year to year. Most of the increased output of the past two months has been concentrated in the Texas and Louisiana Gulf Coast.

Inventories

CRUDE STOCKS UP, PRODUCTS DOWN.

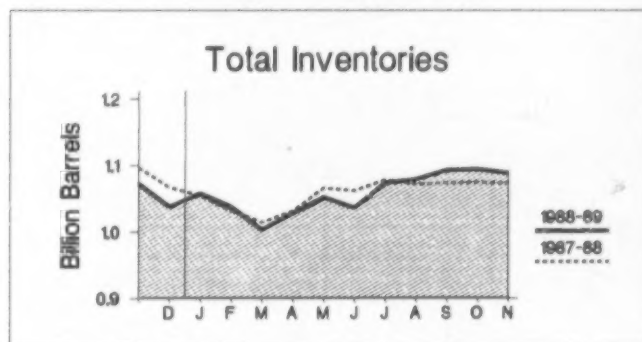
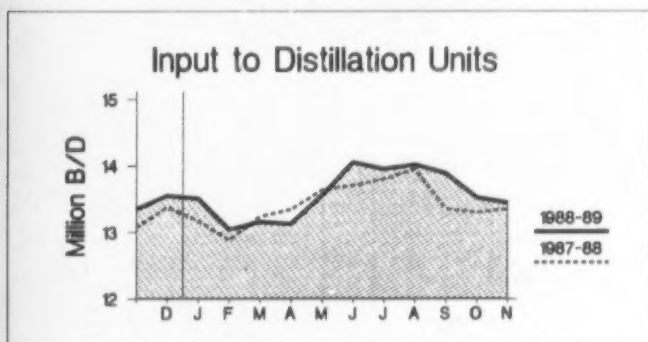
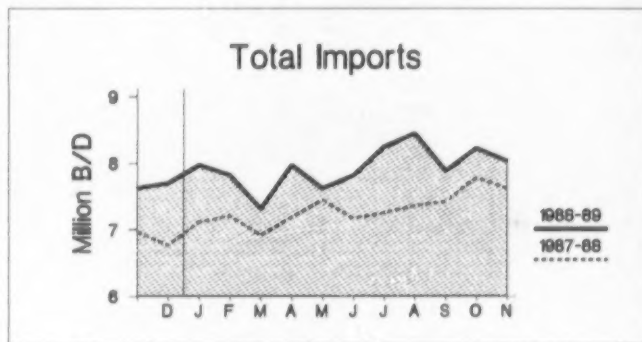
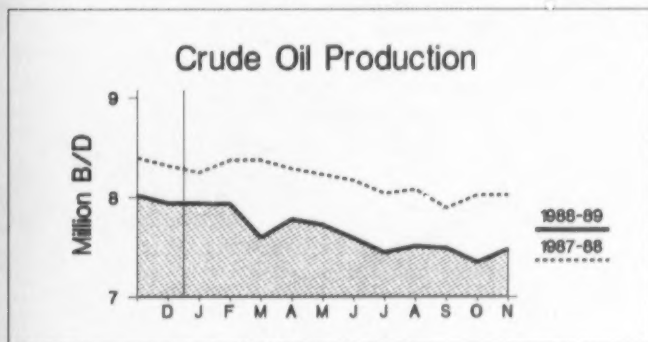
The 6 million barrel decline in total stocks during November contrasts with a build which has averaged about 10 million barrels in recent years. Crude stocks, reflecting the moderating pace of refinery activity, rose 10 million barrels while overall product inventories declined. Month-end crude stocks, at 353 million barrels, were at the highest level since mid-1988.

Distillate stocks rose 3 million barrels to 123 million barrels, and gasoline stocks were nearly unchanged from October's level at 223 million barrels.

Though distillate stocks at the end of November were at the lowest level for that month for many years, the significance of inventories in overall distillate supply has been small in recent years. Over the previous five October-March seasons, inventories have supplied an average of only about 6 percent of deliveries. Refinery production has been the main source of supplies, at 88 percent, and net imports have supplied the remainder.

In view of the major role that refineries have played in distillate supply, past refining and inventory patterns also

suggest that the refining industry as a whole has typically not been pressed to the limits in producing distillate during peak demand periods. Though distillate deliveries regularly reach their highest level in January or February, refinery production during those months has usually been less than levels occurring earlier in the season. This indicates that refiners have typically had the flexibility to increase output during the peak season should unusually cold weather spur heating oil demand.



- 1/ Total supply, i.e., production plus imports adjusted for net stock change is equal to total products supplied from primary storage. Total products supplied from primary storage less exports is equal to total domestic products supplied. Information contained in this report is derived from information published in the API Weekly Bulletin and is based on historical analysis of the industry. All data reflect the most current information available to the API and include all previously published revisions.
- 2/ Includes lease condensate.
- 3/ API data do not include crude oil imported for the Strategic Petroleum Reserve (SPR) nor crude oil stocks held in the SPR (according to the U.S. Department of Energy, the SPR held approximately 580 million barrels as of November 30, 1989).

THE ROLE OF TRANSPORT FUELS IN PETROLEUM DEMAND

Of total U.S. petroleum consumption, the largest and most rapidly growing segment consists of transport fuels. The main transport fuels include gasoline, portions of distillate fuel oil, jet fuel and a small volume of residual fuel oil. Gasoline, by far the largest segment of transport fuels, has shown a decline in its percentage of the transport market during the past decade. Residual fuel oil's share has also declined. Distillate and jet fuel, on the other hand, have continuously increased their share of transport fuels. There are also other transportation-related products such as lubricating oil, asphalt, and some petrochemical feedstocks whose consumption is indirectly related to transportation fuel usage.

In 1988, transport fuels accounted for 63 percent (almost 11 million B/D) of total oil consumption. Ten years ago this share was 55 percent — implying an increase of almost 8 percent. During this same decade total petroleum demand declined by 7 percent. The non-transport sector of consumption saw decreases in residual fuel oil used for industrial purposes and electric utilities, due to fuel switching, and in the heating oil segment of distillate fuel oil.

Motor gasoline comprises more than two-thirds of transport fuel usage. In contrast to the increase for transport fuels overall, gasoline consumption in 1988 at 7.3 million B/D was nearly the same as in 1979. During the early 1980's gasoline deliveries declined in the face of higher prices and a recession. Although gasoline consumption has increased steadily since 1983, the rate of increase has been half that of distillate and only about one-fourth that of jet fuel. Even though both the number of vehicles on the road and the number of miles traveled increased more than 20 percent each, increased fuel efficiency has meant that

gasoline consumption is no higher than it was ten years ago.

Transport-related distillate fuel oil, made up of portions used by railroads, ships and on-highway diesel, now accounts for over 15 percent of all transport fuel usage. Transportation distillate increased 29 percent (over 370 thousand B/D) in the past ten years, due primarily to the growth in on-highway diesel consumption. On-highway diesel usage has grown by about half over the last ten years and now comprises almost 80 percent of transportation distillate use compared with 70 percent in 1979. The strength of the U.S. economy has increased truck shipments, leading to the diesel growth.

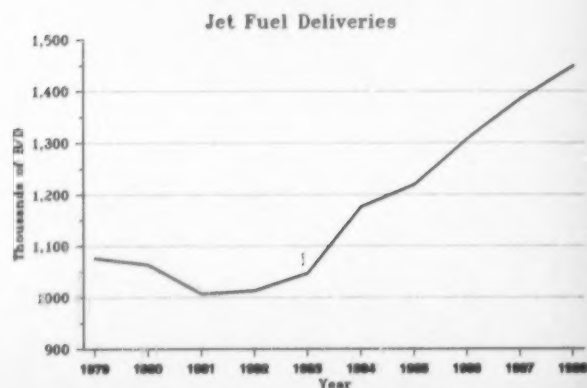
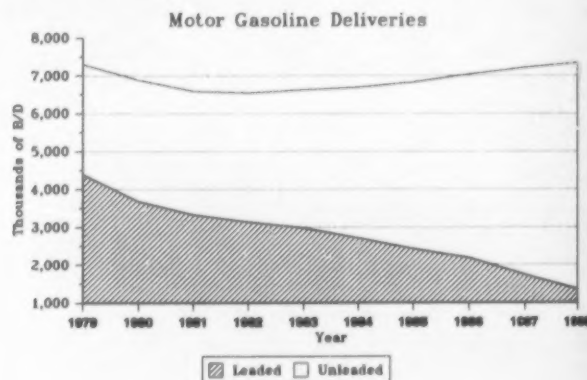
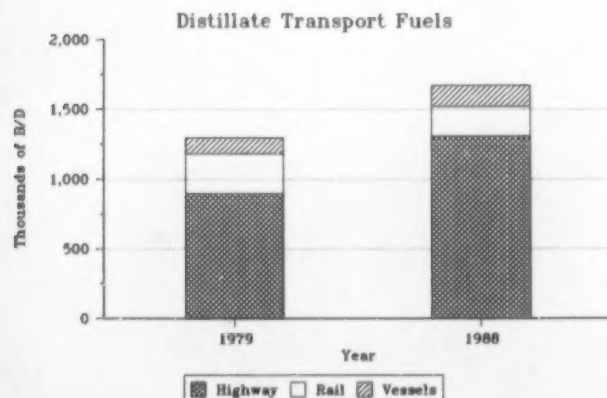
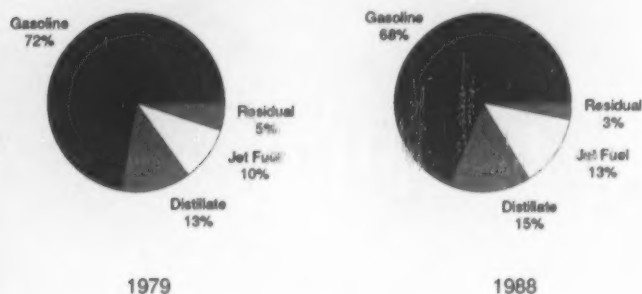
Jet fuel showed the largest percentage increase in the last ten years, up almost 35 percent (over 370 thousand B/D). Jet fuel's share of total transport fuels increased from ten and a half percent in 1979 to almost thirteen and a half percent in 1988. This growth corresponds with higher volumes of both passenger travel and cargo traffic.

Residual fuel oil used as bunker fuel posted a decline for the decade. Bunkers' share of transport fuels dropped from 5 percent in 1979 to 3 percent in 1988. Volumetrically, bunkers declined over 180 thousand B/D or almost 35 percent.

Petroleum products related, but less directly, to transportation include an estimated 90 thousand B/D of lubricating oils for 1988, about 400 thousand B/D of asphalt, and a portion of products derived from petrochemical feedstocks.

In summary, transport fuels account for almost 63 percent of total petroleum demand. These fuels, combined with products indirectly related to transport, constitute an estimated two-thirds of all oil used in the U.S. today.

Transportation Fuels



ESTIMATED UNITED STATES PETROLEUM BALANCE

(Daily Average in Thousands of 42 Gallon Barrels)

Products Supplied/Supply From Primary Storage	NOVEMBER			YEAR-TO-DATE		
	1989 ¹	1988 ²	% Change	1989 ³	1988 ²	% Change
Products Supplied:						
Total motor gasoline	7,276	7,379	(1.4)	7,307	7,336	(0.4)
Finished leaded motor gasoline*	619	1,221	(49.3)	854	1,361	(37.3)
Finished unleaded motor gasoline*	6,657	6,158	8.1	6,453	5,975	8.0
Naphtha-jet	217	218	(0.5)	211	211	-
Kerosine-jet	1,295	1,221	6.1	1,251	1,229	1.8
Distillate fuel oil	3,182	3,183	-	3,080	3,081	-
Residual fuel oil	1,342	1,504	(10.8)	1,300	1,343	(3.2)
All other oils ⁴	4,165	4,290	(2.9)	4,101	4,141	(1.0)
Reclassified ⁵	- 148	- 175	(15.4)	- 160	- 158	1.3
Total domestic products supplied	17,329	17,620	(1.7)	17,090	17,183	(0.5)
Exports	838	717	16.9	835	798	4.6
Total products supplied	18,167	18,337	(0.9)	17,925	17,981	(0.3)
Supply:						
Domestic production:						
Crude oil ⁶	7,480	8,023	(6.8)	7,621	8,158	(6.6)
Natural gas liquids	1,512	1,666	(9.2)	1,572	1,624	(3.2)
Other supply ⁷	948	961	(1.4)	937	898	4.3
Total domestic supply	9,940	10,650	(6.7)	10,130	10,680	(5.1)
Imports:						
Crude oil, total	6,039 ^{10/}	4,981 ^{10/}	21.2	5,776 ^{10/}	5,042 ^{10/}	14.6
Canadian	569	707	(19.5)	612	683	(10.4)
Other	5,470	4,274	28.0	5,164	4,359	18.5
Products, total	1,996	2,644	(24.5)	2,170	2,277	(4.7)
Residual fuel oil	522	785	(33.5)	599	614	(2.4)
Other	1,474	1,859	(20.7)	1,571	1,663	(5.5)
Total imports	8,035	7,625	5.4	7,946	7,319	8.6
Total supply	17,975	18,275	(1.6)	18,076	17,999	0.4
Stock change, all oils	- 192	- 62	XXXX	+ 151	+ 18	XXXX
Refinery Operations						
Input to crude oil distillation units	13,449	13,354	0.7	13,574	13,437	1.0
Operable capacity	15,576	15,909	(2.1)	15,664	15,928	(1.7)
Refinery utilization (%) ⁸	86.3%	83.9%	2.9	86.7%	84.4%	2.7
Crude oil runs	13,333	13,156	1.3	13,410	13,234	1.3
Stocks (millions bbls.)	1989			1988 ²	% Change from ...	
	Nov. 30 ⁹	Oct. 31 ⁹		Nov. 30	Previous Month	Year Ago
Crude oil ^{10/}	352.5	342.5		337.0	2.9	4.6
Unfinished oils	111.9	111.1		112.6	0.7	(0.6)
Total motor gasoline**	223.1	222.9 ^{R/}		221.2	0.1	0.9
Finished leaded motor gasoline*	18.2	20.1		38.2	(9.5)	(52.4)
Finished unleaded motor gasoline*	166.9	164.5 ^{R/}		145.7	1.5	24.6
Naphtha-jet	6.2	6.0		6.4	3.3	(3.1)
Kerosine-jet	44.3	43.4		39.7	2.1	11.6
Distillate fuel oil	122.5	120.0		128.8	2.1	(4.9)
Residual fuel oil	52.6	49.8		44.0	5.6	19.5
All other oils	174.9	198.1 ^{R/}		182.9	(11.7)	(4.4)
Total all oils	1,088.0	1,093.8 ^{R/}		1,072.6	(0.5)	1.4

1/ Based on API estimated data converted to a monthly basis.

2/ Source: U.S. Department of Energy.

3/ Source: January-September, U.S. Department of Energy, October-November, API.

4/ Includes crude losses.

5/ Beginning with January 1981, U.S. Department of Energy began using a new data collection system which encompasses a method to ascertain the amount of product reclassified during the production phase. So that there will be no double counting of these volumes, they are subtracted from total domestic products supplied.

6/ Includes lease condensate.

7/ Includes Unaccounted-for crude oil, Field production of other hydrocarbons and alcohol, and Processing gain.

8/ Represents "Input to crude oil distillation units" as a percent of "Operable capacity."

9/ Derived by interpolating API weekly stocks data.

10/ Data do not include oil imported for the Strategic Petroleum Reserve (SPR) nor crude oil stocks held in the SPR.

R/ Revised.

* Included in motor gasoline.

** Includes finished leaded, finished unleaded, and motor gasoline blending components stocks.



Monthly Statistical Report

Prepared by the Finance, Accounting, and Statistics Department

Vol. 13, No. 12

JANUARY 17, 1990

DECEMBER 1989

SUMMARY

Domestic crude oil production's decline in 1989—nearly double the trend of the previous three years—was the largest ever experienced. Because of the fall in domestic output, which exceeded one half million B/D, and despite flat deliveries of petroleum products for the year, imports reached a ten-year high of nearly 8 million B/D. Although 1989 was the first year since 1985 to show only a marginal increase in petroleum deliveries, overall energy consumption is estimated to have continued to rise, but at a more moderate rate than in the previous two years.

Crude oil production's 553 thousand B/D, 6.8 percent drop was due not only to a more rapid falloff in lower 48 output but to a reversal in Alaska's previous upward trend. Alaskan production, which had been increasing almost every year since 1977, fell 140 thousand B/D or 7.0 percent in 1989. Although part of that decrease represents temporary declines due to maintenance work and traffic restrictions following the tanker accident last spring, the underlying decline trend for the year still appears to have been roughly 100 thousand B/D. Lower 48 production dropped by over 400 thousand B/D, compared with a 265 thousand B/D decline in 1988, and towards the end of the year had fallen to a level nearly 25 percent lower than in early 1986.

Imports continued to increase in 1989, and total imports as a percentage of domestic deliveries in 1989 reached 46.0 percent. This was nearly half again as large as the 31.5 percent share for 1985 and only slightly short of the 47.7 percent high set in 1977. Imports that year, however, were well above what was required for immediate needs, with an average of over 500 thousand B/D ending up in inventories over the year. If adjusted for such stock changes, imports' share in 1977 would have been slightly less, at 44.8 percent—and 1989's share, at 46.7 percent, would have set an all-time high.

Meanwhile, deliveries were essentially flat in 1989, contrasting with growth for the previous three years averaging over 3 percent. All major products experienced either smaller increases than in 1988 or slipped from increases to declines. Higher prices early in the year and slower economic growth led to a marginal decline in gasoline deliveries, versus a 1.8 percent increase the prior year. Distillate deliveries rose only about 1 percent, down from a nearly 5 percent increase in 1988. Kerosine jet fuel deliveries' previous strong growth continued to moderate, to 3.6 percent, while residual fuel oil deliveries reversed a 9 percent gain in 1988 with a 1.4 percent decline in 1989. Deliveries in the "other oils" category

declined slightly in 1989 after five years of growth.

Although the effects of higher prices early in the year, along with slower economic growth, indicate a moderation in the growth of petroleum deliveries for 1989, it would not be surprising if final data for the year eventually show a somewhat larger increase than the current 0.1 percent. Department of Energy figures, which constitute ten out of the twelve months of total deliveries data used here, have for the previous three years been consistently revised upwards by from 0.7 to 0.9 percent when final data are released in the middle of the following year.

In contrast with deliveries for the year as a whole, December's were unusually strong due mainly to extraordinarily severe weather—the coldest December for the Northeast in more than seventy years—and the consequent surge in demand for heating fuels and fuels for electrical generation peaking units. Distillate deliveries, in particular, jumped nearly half a million B/D or 13 percent from a year ago. At more than 4 million B/D, December's distillate deliveries were the highest for that month since 1978, a time when the normal heating oil demand base was 35-40 percent higher than currently.

In response, December refinery production of distillate rose to the highest level for the month since 1978. This, combined with relatively strong imports, particularly towards the end of the month, and an above-normal inventory draw, resulted in supplies which were apparently adequate for consumers' needs, despite difficulties in wholesale distribution in some areas in the face of the unprecedented leap in demand.

In large part due to unusually strong deliveries, estimated at roughly 1.5 million B/D above the recent trend, the decline for total stocks was roughly four times the 20 million barrel average of recent Decembers. Distillate stocks fell 14 million barrels to 108 million barrels, down 16 million barrels from a year ago although still more than 20 million barrels above the estimated minimum operating level.

	API ESTIMATES			
	DECEMBER		YEAR-TO-DATE	
	Million B/D	Percent Change	Million B/D	Percent Change
Total domestic deliveries	19.4	5.6	17.3	0.1
Crude production*	7.2	(8.7)	7.6	(6.8)
Total imports*	8.1	4.6	8.0	8.2
Stocks (million bbl)*	989	(4.7)	na	na

Note: For layout purposes, the graphs of monthly data which normally appear with the text have been moved to the end of this month's Report.

PRODUCT SUPPLIED¹¹

Energy

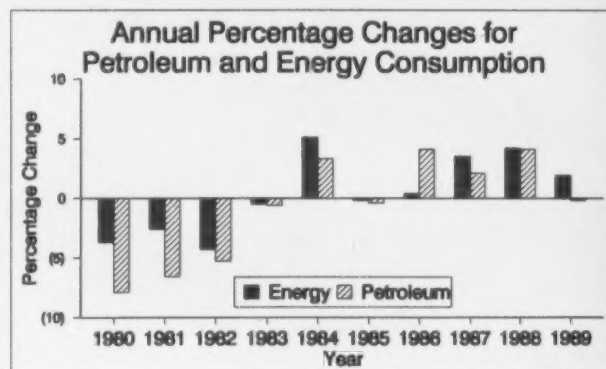
ENERGY GROWS, BUT NOT PETROLEUM.

Total energy consumption in 1989 is estimated to have risen about 1.9 percent over that of 1988, down from the 3.5 to 4 percent growth of the previous two years. The main source of the increase was natural gas, for which use is estimated to have risen about 6 percent. Coal usage is estimated to have increased only slightly, and petroleum was nearly flat. "Other" increased due to a partial recovery in hydro generation; nuclear power was roughly only even compared with a year ago due to greater than usual downtime at nuclear plants early in the year.

Natural gas increased its share of total energy to about 24 percent, reversing the ranking of the previous three years when coal's share had exceeded that of natural gas. Petroleum's share is estimated to have declined for the third year in a row to about 42 percent, compared with 43.4 percent in 1986. In 1977, before the conservation and fuel switching of the late 1970s and early 1980s, petroleum's share had been as high as 48.7 percent.

With economic growth for the year estimated at a little less than 3 percent, energy use per dollar of economic output, one measure of energy efficiency in the economy, is likely to have decreased slightly in 1989 after remaining nearly level during the previous three years. It should be noted, however, that cur-

rent energy data on which these estimates are based are preliminary and incomplete. "Total energy" follows the Department of Energy's definition which excludes wood, solar, and other energy forms except what is consumed to supply the electric power grid; data on other usage are not easily available. Data for most major energy sources are not currently available for the full year, and past experience has shown that the preliminary data now available can be revised substantially.



ESTIMATED ENERGY CONSUMPTION AND SHARES BY TYPE

Consumption (Quadrillion BTU Annually)

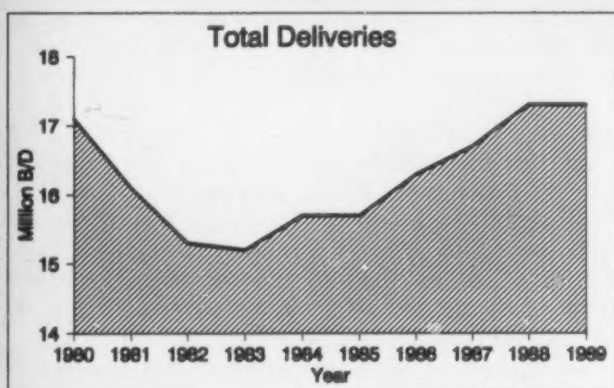
	Coal	Natural Gas	Petroleum	Other	Total
1988	18.7	18.5	34.2	8.7	80.1
1989	18.9	19.7	34.1	8.9	81.6
Change	+0.2	+1.2	-0.1	+0.2	+1.5
Percent Change	+0.7%	+6.4%	-0.2%	+3.1%	+1.9%

Market Shares (Percent)

	Coal	Natural Gas	Petroleum	Other	Total
1988	23.4	23.2	42.7	10.7	100.0
1989	23.1	24.2	41.8	10.9	100.0
Percentage point change in share	-0.3	+1.0	-0.9	+0.2	

Note: Figures rounded independently; calculations based on unrounded data. Because 1988 was a leap year, the percentage change for petroleum on an annual basis differs from that computed on a daily basis.

Sources: Department of Energy, API estimates.



Gasoline DELIVERIES FLAT FOR THE YEAR.

Gasoline deliveries were essentially flat in 1989, following six years of uninterrupted, though moderate, growth. Since 1986, when a major decline in world petroleum prices led to a 25 percent annual average drop in retail gasoline prices and stronger growth in gasoline consumption, gasoline deliveries' annual increases had been slipping year by year. But gasoline deliveries' growth in 1989 fell below what would have been indicated by that trend. Gasoline deliveries had grown 3.0 percent in 1986, 2.4 percent the following year, and 1.8 percent in 1988. For 1989, deliveries decreased by 0.2 percent.

The weakness in the year's gasoline deliveries was apparently due to the combined effects of higher prices earlier in the year, coupled with slower economic growth, particularly in the latter part of the year. Retail prices rose about 20 cents per gallon from January to March, attributed largely to a lagged response to the earlier rise in crude oil costs, then drifted downwards by about 12 cents by December.

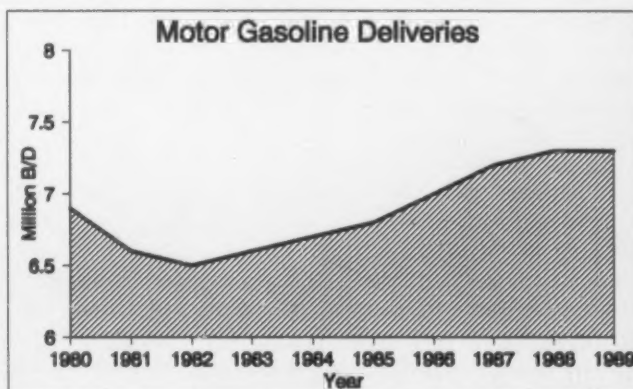
Though the higher prices likely had a slowing effect on gasoline demand earlier in the year, by year-end, retail prices were, on an inflation-adjusted basis, only 2 to 3 percent above the level of one year earlier. But slower economic growth—dropping from 4.4 percent in 1988 to around 3 percent for 1989 as a whole and less than that in the second half—also apparently put a drag on gasoline demand.

Corresponding with the weakening in gasoline deliveries growth, travel increases slipped in 1989 as well—from the 5.3 percent now calculated for 1988 to about 3 percent for 1989. If the improvement in the existing fleet's fuel efficiency was 1.5 to 2 percent, 1989's increase in travel might suggest that consumption actually increased slightly in 1989. Since Department of Energy data on gasoline deliveries, to which API estimates are keyed, have been regularly revised upwards by 0.2 to 0.3 percent in recent years, this further suggests that deliveries might have been slightly stronger than current data show.

However, travel data are subject to uncertainty as well, as evident in the substantial revision in 1988's growth estimate. Before revision to 5.3 percent, that year's growth in miles traveled has been calculated at 3.5 percent; the growth rate as now calculated represents an upward revision of 1.8 percentage

points, roughly double the size of the revisions of the previous two years. Despite the uncertainties, deliveries data, travel estimates, and economic fundamentals all point to weaker gasoline deliveries for the past year.

Leaded gasoline's market share dropped from 18 percent in 1988 to an average 11 percent in 1989; in the latter part of the year it slipped below 10 percent. The decline of leaded gasoline



has come not only as older vehicles using leaded fuel continue to be retired from the fleet but as midgrade unleaded has grown as a substitute for regular leaded in many markets. The decline in leaded fuel's share was largely balanced by the growth in shares for midgrade and regular unleaded, estimated at 7 percent and 59 percent, respectively, for 1989.

However, premium unleaded's share, which had been making 2 to 3 percentage point gains in each of the past three years, only held steady at 23 percent in 1989. Premium, which had lost significant market share in the first part of the year in apparent response to higher retail gasoline prices at that time, has since been regaining some of that lost ground.

December's gasoline deliveries, contrary to the declines of recent previous months, increased 0.8 percent versus the previous December. The month's unusually strong deliveries were roughly 200 thousand B/D above the recent trend, suggesting that purchases may have been greater than actual consumption.

Distillates STRONG FOR DECEMBER, SLOWER RISE FOR THE YEAR.

December's bitterly cold weather—the most severe December for the Northeast since 1917—led to an unprecedented surge in the demand for heating oil and other distillates for the month. But although December's distillate deliveries jumped 13 percent or over 460 thousand B/D versus one year earlier, for the year as a whole they rose only 1.1 percent.

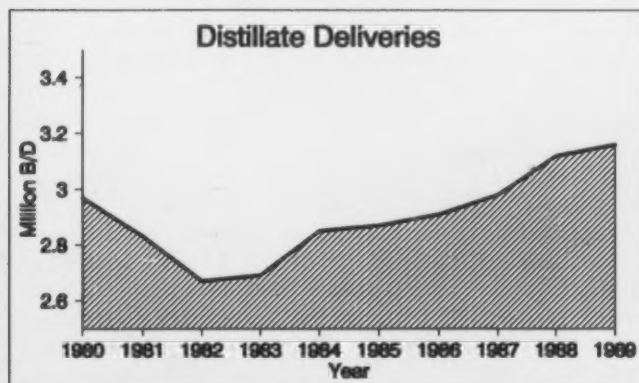
December's severe weather, averaging more than 30 percent colder than normal, bolstered heating oil consumption by at least an estimated 300 thousand B/D. Additional demand from electric utilities—generation east of the Rockies jumped 13 percent versus one year earlier for December and averaged 20 percent above a year ago in the last two weeks of the month—is estimat-

ed to have added at least another 100 thousand B/D. This was due not only to weather-related domestic demand for electricity, but to the need to substitute for natural gas diverted to residential users and to meet higher electricity demand from Canada.

As a result of these developments, deliveries of distillate fuel oil (which is consumed both as heating oil and as diesel fuel) increased to more than 4 million B/D, the highest December level since 1978—a year when heating oil demand was normally 35-40 percent higher than in more recent times. With refinery production setting recent-year records, imports relatively strong, and an above-average draw from primary stocks, adequate supplies apparently reached consumers, despite difficulties in wholesale distribution in some areas in the face of the unprecedented surge in demand.

For the year as a whole, distillate deliveries' increase of about 1 percent was down substantially from the previous year's nearly 5 percent increase. Though this past December's deliveries jump by itself would have been enough to add more than a percentage point to 1989's annual deliveries increase, it was partially counterbalanced by unusually mild weather in the first quarter. Thus, the increase for the year as a whole mainly reflects growth, however modest, in the non-heating portion of distillate demand.

The slowing in the growth of the economy is believed to have led to some slackening in the growth of industrial and transportation use. On-highway diesel, which had increased by an average 5-6 percent for the previous two years, is believed to have risen only about 3 percent in 1989, though it was still the main contributor to overall distillate fuel oil growth for the year. Rail traffic was off marginally for the year, and the net change in consumption due to the remaining sectors is estimated to be small.



Residual Fuel Oil DOWN SLIGHTLY IN 1989.

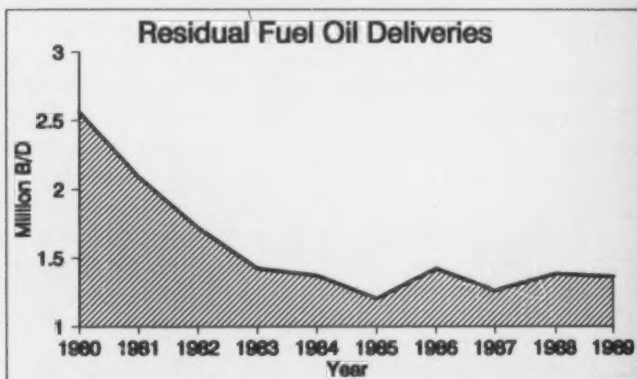
In a fashion seemingly uncharacteristic of the usual wide swings, residual fuel oil's decline in deliveries averaged only 1.4 percent in 1989. Annual swings in deliveries had run from 9 to 19 percent in eight out of nine of the previous years.

However, those swings, mostly related to fuel switching, mask an apparent stability over the past seven years in the highs

and lows of residual fuel oil deliveries, which have remained in the roughly 1.2 to 1.4 million B/D range. Conversely, 1989's relatively small annual change masks wider swings in deliveries within the year.

For the first half, residual fuel oil deliveries were up 4.2 percent, with strong purchases from electric utilities, in part because of greater than usual downtime for nuclear generation. Specifically, first-half purchases of heavy fuel oil by electric utilities were up 180 thousand B/D or by more than one third versus one year earlier. Residual fuel oil deliveries in the second half fell 6.7 percent, with switching to natural gas for much of the period contributing to the decline.

Thus, most of residual fuel oil's swings in 1989 were apparently the result of fuel switching in the electric utility and industrial sectors, which account for roughly two thirds of residual fuel oil consumption. Bunker fuel sales, by contrast, are believed to have been relatively stable for the year as a whole, though likely picking up in the latter part of the year as competition from high residual fuel oil demand in Europe apparently shifted some bunker purchases to U.S. ports.



Kerosine Jet Fuel GROWTH CONTINUES TO MODERATE IN 1989.

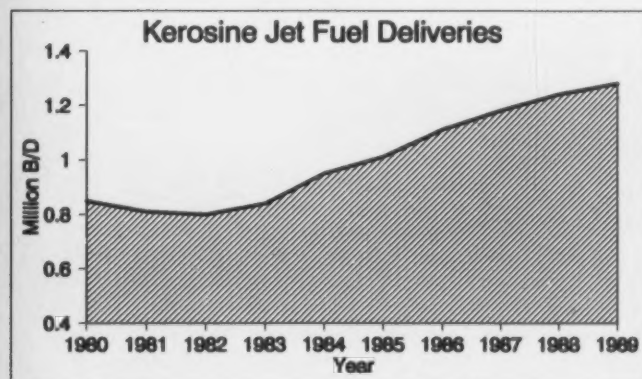
Corresponding with the moderation for deliveries of other petroleum products, growth in deliveries of kerosine jet fuel also slowed in 1989. The year's increase of 3.6 percent continued the longer-term pattern of slippage in kerosine jet fuel's growth of the past several years. As recently as 1986, kerosine jet fuel deliveries had jumped 10 percent annually; the following year, growth was still a healthy 6.9 percent, slowing to 4.7 percent in 1988.

In fact, the past year's increase would have been only about 2 percent had it not been for the nearly 20 percent jump in December's deliveries related to the month's extremely cold weather. Apparently, product diverted to diesel fuel blending for cold-start properties as well as in generation and other uses appeared in the data as deliveries of kerosine jet fuel.

For 1989, smaller increases in air traffic corresponded with the moderation for most of the year in kerosine jet fuel's deliveries growth. Growth in miles flown had already slipped, year by year, from 12 percent in 1986 to 3.9 percent in 1988. For 1989,

air traffic is estimated to have increased only about 2 percent, half the rate of the previous year. Year-to-year increases were weak through mid-year, averaging only about 1 percent, but growth more recently appears to have recovered slightly to around 3 percent.

Although increases in kerosine jet fuel deliveries moderated for most of 1989, growth over a longer span has been substantial. Since 1982, kerosine jet fuel deliveries have risen by almost 60 percent or nearly half a million B/D, accounting for nearly a quarter of the increase in total deliveries since that time.



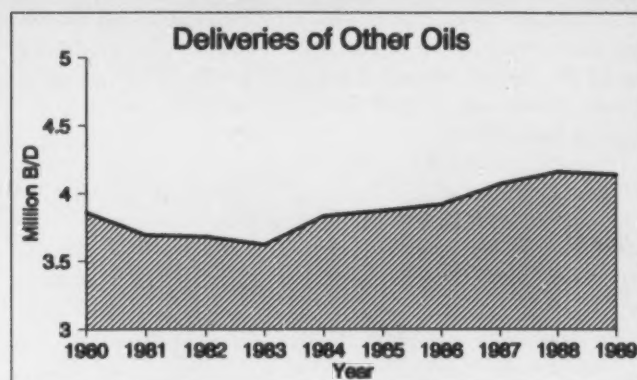
Other Oils

DECLINE REVERSES PRIOR UPWARD TREND.

Deliveries of "other oils" dropped 0.4 percent in 1989, following five uninterrupted years of growth. Over that period, deliveries of "other oils" had risen 15 percent or about 540 thousand B/D, with many of the products within the category contributing to the increase.

The main factor leading to the decline was the drop in demand for petrochemical feedstocks, which started to become evident as early as the second quarter. Ethane deliveries, in particular, are estimated to have fallen 9 or 10 percent for the year as a whole, responding not only to weaker feedstock demand but to less favorable economics for much of the year compared with other feedstocks. Deliveries of petroleum liquid feedstocks (gasoil and naphtha), however, are also estimated to have fallen by around 3 percent for the year.

Propane deliveries for the year are estimated to have risen 4-5 percent; apparent deliveries of butanes are believed to have risen 8 to 9 percent for the year, boosted by streams diverted from gasoline blending as a result of more stringent state and federal requirements for gasoline vapor pressure. Lubricating oils and petroleum coke are estimated to have remained steady, while asphalt deliveries are estimated to have declined 2 to 3 percent. Production and consumption of refinery gas, which amounts to nearly 700 thousand B/D, is estimated to have risen 1 to 2 percent as a byproduct of increased refinery operations.



SUPPLY

Production

LOWEST OUTPUT IN 26 YEARS.

In 1989, U.S. crude oil production fell by the largest amount ever recorded for one year. The more than one-half million B/D, 6.8 percent decline was due not only to a more rapid drop in lower 48 output, but to a reversal of Alaska's upward trend of more than a decade. The year's dropoff nearly doubled the average 280 thousand B/D decline rate of the previous three years and resulted in a production level which, at 7.6 million B/D, was the lowest in 26 years.

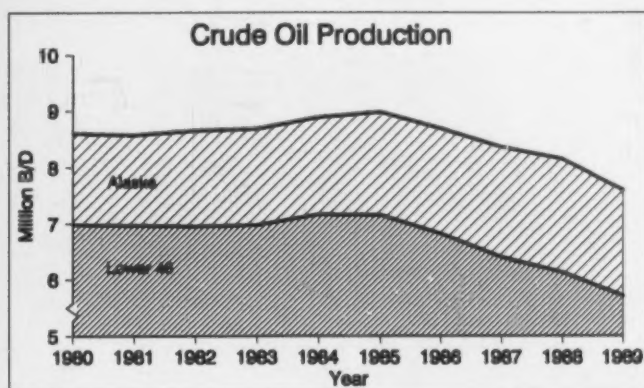
Alaskan production fell 140 thousand B/D or 7.0 percent. Although part of the decline reflected special factors, including restrictions in shipping operations related to the tanker accident in the spring and maintenance work later in the summer, a decline rate of around 100 thousand B/D appears to be a fair assessment of the underlying trend for the year.

Since the coming on stream of the Prudhoe Bay field in 1977, nearly a decade after the field's discovery, development work there and in other, smaller fields, had kept Alaskan production on the rise in nine out of ten of the following years. From 1977 to 1980, production in that state rose by nearly 1.2 million B/D. Gains were smaller in following years, but annual increases of from 40 to 100 thousand B/D had still been common, bringing production for the state to over 2 million B/D in 1988.

With 1989's decline, however, Alaskan production slipped back to its level of three years earlier. Though projects to increment output in existing Alaskan fields have continued, any new exploration is likely to take many years to affect production levels. For each of the Prudhoe Bay, Kuparuk, and Endicott fields, for example, it took as much as a decade or more from discovery to the beginning of production to complete exploration, permitting, and development work.

Production in the lower 48 fell more than 400 thousand B/D in 1989, versus about 265 thousand B/D the prior year. By the latter part of the year, the more rapid decline had reduced output outside Alaska by nearly 25 percent, or 1.7 million B/D, compared with early 1986. This decline, along with the growth in imports, have brought the crude oil supply balance to where 1989's crude oil imports, at 5.8 million B/D, were slightly larger than lower 48 crude oil production of 5.7 million B/D.

December's production for the U.S. as a whole, hindered in some areas by severe winter weather, dipped by about 200 thousand B/D from November's level to 7.2 million B/D. Output for the month was nearly 700 thousand B/D or 9 percent below one year earlier.



Imports

TOTAL IMPORTS' SHARE REACHES 46 PERCENT.

Because of the more rapid decline in domestic crude oil production—and even with the lack of growth in deliveries—imports rose 600 thousand B/D or 8.2 percent in 1989, returning to levels not experienced since the late 1970s.

From the late 1970s, when imports were running at over 8 million B/D, through the early 1980s, price-induced conservation and fuel switching, combined with slower economic growth, had resulted in falling domestic demand. This, along with increased production from Alaska and steady-to-rising production in the lower 48, reduced imports to about 5 million B/D by 1985.

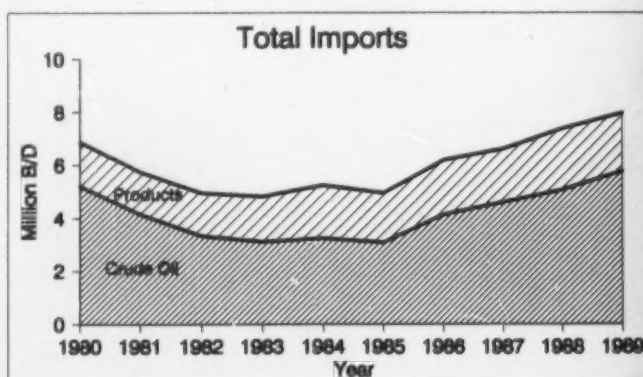
Since then, however, growing demand and declining domestic production have increased imports again—by fully 60 percent—to near the 8 million B/D level. Total imports' share of domestic deliveries has risen to 46.0 percent, nearly half again as large as its 31.5 percent share four years ago. The past year's import share was second only to the 47.7 percent level reached in 1977, when imports were bolstered by an annual inventory accumulation averaging more than 500 thousand B/D.

In fact, if adjusted for such inventory changes, total imports' share of domestic deliveries in 1989 would have reached an all-time high—46.7 percent, roughly 2 points greater than the 44.8 percent adjusted figure for 1977.

Although imports from Western Hemisphere sources still accounted for roughly 43 percent of supplies in 1989, imports from the Persian Gulf have continued to grow, reflecting that region's role as the major source of incremental supplies on world markets. Accounting for little more than 5 percent of U.S. imports in 1985, that region's share of U.S. imports grew to about 21 percent in 1989. However, because the U.S. must compete in world markets for its additional petroleum needs, a more accurate picture of the external supply situation is given by patterns in overall world trade in petroleum, of which the Middle

East accounts for more than 40 percent.

Product imports in 1989 declined about 130 thousand B/D, or 5.6 percent, from 1988. This drop was more the result of comparison against unusually strong product imports in 1988 (up nearly 300 thousand B/D versus 1987) than of a reversal of the longer term, gradual upward trend. In fact, product imports in 1989 were more than 160 thousand B/D higher than in 1987. Compared with 1988, imports of gasoline and blending components were off about 40 thousand B/D, and residual fuel oil's decrease was similar. Distillate fuel oil imports, at 307 thousand B/D, were about even with the prior year. Kerosine jet fuel imports came close to reaching 100 thousand B/D for the first time.



Refinery Operations

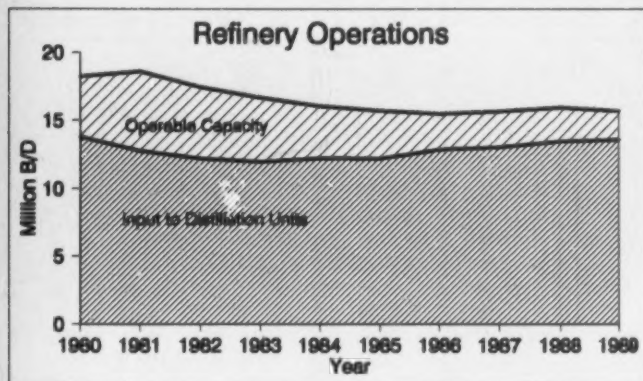
DISTILLATE OUTPUT SETS RECENT-YEAR HIGH FOR DECEMBER.

Corresponding with the moderation in the growth of domestic deliveries, the growth in overall refinery activity slowed as well in 1989. Input to distillation units averaged about 1 percent higher than in 1988, down from the average annual increase of 3.4 percent over the prior three years. Utilization as traditionally calculated rose to 86.5 percent for the year. However, for capacity in actual operation, the average was closer to 90.5 percent, about one point below the estimated annual high reached in the late 1970s.

Though the rise in input to distillation units for the year was small, increases in some downstream processing, particularly catalytic cracking, were greater. Department of Energy data show that fresh feed to catalytic cracking units increased 2.4 percent for the first ten months. For May through June, when refiners were making efforts to compensate for reduced blending of butane in order to meet more stringent federal and state requirements on gasoline vapor pressure for the summer, catalytic cracking units were apparently operating at or near capacity at an average of more than 6 percent above the same period in the previous year.

For December, the refining industry, in response to the surge in demand for heating oil, set a recent-year record for distillate fuel oil production. Output for the month rose 8 percent from one year earlier to over 3.3 million B/D—the highest for December since 1978—despite severe cold weather in the Gulf

and other problems which hindered operations at some refineries near the end of the month.



Inventories

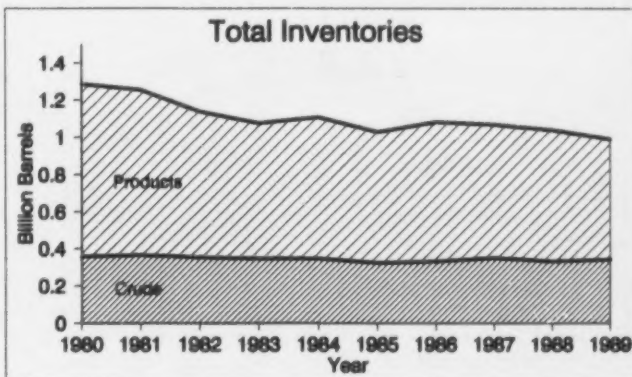
STOCKS FALL 86 MILLION BARRELS FOR THE MONTH.

December, compared with a recent-year average of about 20 million barrels. Reduced refinery operations near the end of the month due to technical problems were also a contributing factor. Because of the large drawdown, year-end stocks were about 5 percent below one year ago.

In large part because of abnormally strong deliveries, total inventories fell by an unusually large 86 million barrels in

Distillate stocks declined 14 million barrels, compared with recent previous Decembers which have averaged little change for the month. At nearly 435 thousand B/D, the draw was the largest for December in six years. Month-end stocks were 108 million barrels, 16 million barrels below a year ago but more than 20 million barrels above the National Petroleum Council's estimated minimum operating level of 85 million barrels.

Due to a combination of unusually strong deliveries and refinery emphasis on distillate production, gasoline inventories fell 9 million barrels, versus a recent-year average increase of about 4 million barrels. Gasoline stocks, at 214 million barrels, were down about 14 million barrels from last December.



1/ Total supply, i.e., production plus imports adjusted for net stock change is equal to total products supplied from primary storage. Total products supplied from primary storage less exports is equal to total domestic products supplied. Information contained in this report is derived from information published in the API Weekly Bulletin and is based on historical analysis of the industry. All data reflect the most current information available to the API and include all previously published revisions.

2/ Includes lease condensate.

3/ API data do not include crude oil imported for the Strategic Petroleum Reserve (SPR) nor crude oil stocks held in the SPR (according to the U.S. Department of Energy, the SPR held approximately 580 million barrels as of December 31, 1989).

ESTIMATED UNITED STATES PETROLEUM BALANCE
(Daily Average in Thousands of 42 Gallon barrels)

Products Supplied/Supply From Primary Storage	DECEMBER			YEAR-TO-DATE		
	1989 ¹	1988 ²	% Change	1989 ³	1988 ²	% Change
Products Supplied:						
Total motor gasoline	7,402	7,344	0.8	7,318	7,336	(0.2)
Finished leaded motor gasoline/*	489	1,124	(56.5)	826	1,341	(38.4)
Finished unleaded motor gasoline/*	6,913	6,220	11.1	6,492	5,995	8.3
Naphtha-jet	234	230	1.7	210	213	(1.4)
Kerosine-jet	1,575	1,314	19.9	1,280	1,236	3.6
Distillate fuel oil	4,022	3,560	13.0	3,155	3,122	1.1
Residual fuel oil	1,823	1,754	3.9	1,359	1,378	(1.4)
All other oils ⁴	4,533	4,366	3.8	4,142	4,160	(0.4)
Reclassified ⁵	-186	-202	(7.9)	-168	-161	4.3
Total domestic products supplied	19,403	18,366	5.6	17,296	17,284	0.1
Exports	789	1,008	(21.7)	824	815	1.1
Total products supplied	20,192	19,374	4.2	18,120	18,099	0.1
Supply:						
Domestic production:						
Crude oil ⁶	7,249	7,942	(8.7)	7,587	8,140	(6.8)
Natural gas liquids	1,554	1,634	(4.9)	1,565	1,625	(3.7)
Other supply ⁷	571	972	(41.3)	885	904	(2.1)
Total domestic supply	9,374	10,548	(11.1)	10,037	10,669	(5.9)
Imports:						
Crude oil, total ⁸	5,932	5,203	14.0	5,786	5,055	14.5
Canadian	663	655	1.2	618	681	(9.3)
Other	5,269	4,548	15.9	5,168	4,374	18.2
Products, total	2,120	2,497	(15.1)	2,166	2,295	(5.6)
Residual fuel oil	556	975	(43.0)	604	644	(6.2)
Other	1,564	1,522	2.8	1,562	1,651	(5.4)
Total imports	8,052	7,700	4.6	7,952	7,350	8.2
Total supply	17,426	18,248	(4.5)	17,989	18,019	(0.2)
Stock change, all oils	-2,766	-1,126	*****	-131	-80	*****
Refinery Operations						
Input to crude oil distillation units	13,435	13,554	(0.9)	13,563	13,447	0.9
Operable capacity	15,591	15,919	(2.1)	15,671	15,928	(1.6)
Refinery utilization (%) ⁹	86.2	85.1	1.3	86.5	84.4	2.5
Crude oil runs	13,278	13,381	(0.8)	13,401	13,246	1.2
	1989		1988 ²	% Change from		
Stocks (millions bbls.)	Dec. 31 ¹⁰	Nov. 31 ¹⁰	Dec. 31	Previous Month	Year Ago	
Crude oil ⁶	342.0	351.9 ^R	330.4	(2.8)	3.5	
Unfinished oils	104.6	111.9	99.9	(6.5)	4.7	
Total motor gasoline/**	214.2	223.1	228.4	(4.0)	(6.2)	
Finished leaded motor gasoline/*	17.4	18.2	40.2	(4.4)	(56.7)	
Finished unleaded motor gasoline/*	160.0	166.9	149.7	(4.1)	6.9	
Naphtha-jet	5.9	6.2	6.1	(4.8)	(3.3)	
Kerosine-jet	35.6	44.3	37.7	(19.6)	(5.6)	
Distillate fuel oil	108.0	121.5 ^R	123.5	(11.1)	(12.6)	
Residual fuel oil	43.3	52.6	44.6	(17.7)	(2.9)	
All other oils	135.8	163.6 ^R	167.1	(17.0)	(18.7)	
Total all oils	989.4	1,075.1 ^R	1,037.7	(8.0)	(4.7)	

/1 Based on API estimated data converted to a monthly basis.

/2 Source: U.S. Department of Energy.

/3 Source: January-October, DOE, November-December, API.

/4 Includes crude losses.

/5 Beginning with January 1981, U.S. Department of Energy began using a new data collection system which encompasses a method to ascertain the amount of product reclassified during the production phase. So that there will be no double counting of these volumes, they are subtracted from the total domestic products supplied.

/6 Includes lease condensate.

/7 Includes Unaccounted-for crude oil, Processing gain and Field Production of other hydrocarbons and alcohol.

/8 Data do not include oil imported for the Strategic Petroleum Reserve (SPR) nor crude oil stocks held in the SPR.

/9 Represents "Input to crude oil distillation units" as a percent of "Operable capacity".

/10 Derived by interpolating API weekly stocks data.

/R Revised.

/* Included in motor gasoline.

/** Includes finished leaded, finished unleaded, and motor gasoline blending components stocks.

ESTIMATED UNITED STATES PETROLEUM BALANCE
(Daily Average in Thousands of 42 Gallon barrels)

Products Supplied/Supply From Primary Storage	4TH QUARTER		
	1989 ¹	1988 ²	% Change
Products Supplied:			
Total motor gasoline	7,312	7,331	(0.3)
Finished leaded motor gasoline/*	592	1,210	(51.1)
Finished unleaded motor gasoline/*	6,720	6,121	9.8
Naphtha-jet	224	221	1.4
Kerosine-jet	1,378	1,271	8.4
Distillate fuel oil	3,447	3,322	3.8
Residual fuel oil	1,481	1,534	(3.5)
All other oils ³	4,307	4,337	(0.7)
Reclassified ⁴	-181	-158	14.6
Total domestic products supplied	17,968	17,858	0.6
Exports	806	820	(1.7)
Total products supplied	18,774	18,678	0.5
Supply:			
Domestic production:			
Crude oil ⁵	7,350	7,996	(8.1)
Natural gas liquids	1,514	1,654	(8.5)
Other supply ⁶	718	932	(23.0)
Total domestic supply	9,582	10,582	(9.5)
Imports:			
Crude oil, total ⁷	6,037	5,233	15.4
Canadian	605	672	(10.0)
Other	5,432	4,561	19.1
Products, total	2,060	2,472	(16.7)
Residual fuel oil	551	788	(30.1)
Other	1,509	1,684	(10.4)
Total imports	8,097	7,705	5.1
Total supply	17,679	18,287	(3.3)
Stock change, all oils	-1,095	-391	****
Refinery Operations			
Input to crude oil distillation units	13,472	13,405	0.5
Operable capacity	15,630	15,925	(1.9)
Refinery utilization (%) ⁸	86.2	84.2	2.4
Crude oil runs	13,323	13,222	0.8
4TH QUARTER			
Stocks (millions bbls.)	1989 ⁹	1988 ⁹	% Change
Crude oil ⁷	342.0	330.4	3.5
Unfinished oils	104.6	99.9	4.7
Total motor gasoline/**	214.2	228.4	(6.2)
Finished leaded motor gasoline/*	17.4	40.2	(56.7)
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Total all oils	989.4	1,037.7	(4.7)

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/3 Includes crude losses.

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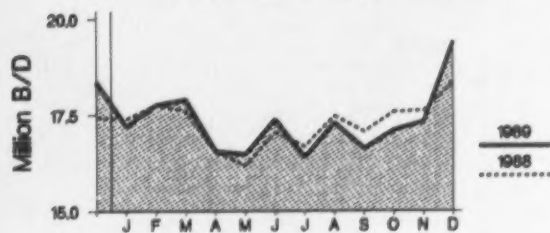
/9 Derived by interpolating API weekly stocks data.

/R Revised.

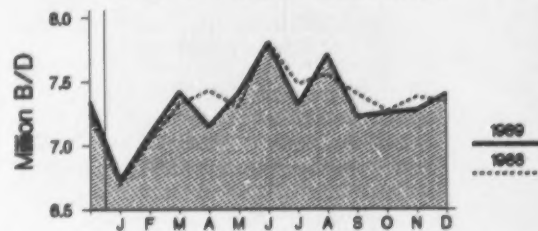
/* Included in motor gasoline.

/** Includes finished leaded, finished unleaded, and motor gasoline blending components stocks.

Total Deliveries



Motor Gasoline Deliveries



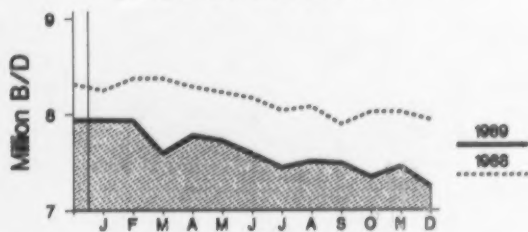
Distillate Deliveries



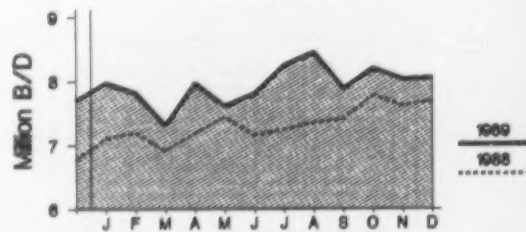
Residual Fuel Oil Deliveries



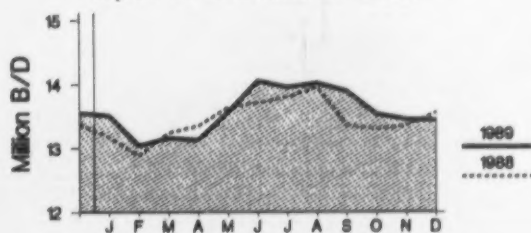
Crude Oil Production



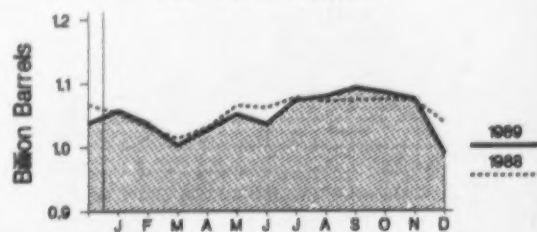
Total Imports



Input to Distillation Units



Total Inventories





Monthly Statistical Report

A2575-2

Prepared by the Finance, Accounting, and Statistics Department

Vol. 14, No. 1

FEBRUARY 15, 1990

JANUARY 1990

SUMMARY

In January, for the first month since 1977, total imports exceeded 9 million B/D—and as a percentage of domestic deliveries reached an all-time high of nearly 54 percent. In part, the month's strong imports reflected efforts to replenish supplies following December's extremely high demand. Imports were more than 1 million B/D higher than what would have been needed to supply January's deliveries in conjunction with typical inventory changes.

But although temporary factors contributed to January's surge in imports, these developments are also the product of longer-term trends, namely, the continued decline in domestic crude oil production and, until recently, the growth in consumption. Domestic crude oil production has fallen by nearly 20 percent or over 1.7 million B/D since early 1986—the result of reduced drilling and well servicing over the past four years. Oil well completions for 1989 were at only one third their level of 1985. Crude oil production continued to decline in January, falling by 430 thousand B/D or 5.5 percent.

January's refinery activity and product imports were both strong as efforts were made to replenish supplies following December's weather-related surge in demand. Distillate fuel oil output jumped over 6 percent from a year ago to its highest January level since the late 1970s. Distillate imports were up

by nearly two thirds to over one half million B/D, the highest monthly level ever, while product imports as a whole rose 13 percent to nearly 2.9 million B/D.

Meanwhile, total deliveries, after jumping nearly 6 percent in December because of severely cold weather, in January reverted to the pattern of decline which has otherwise been evident since the middle of last year. Total deliveries fell 1.5 percent or 265 thousand B/D for the month versus one year ago. Reflecting January's warm weather, distillate deliveries fell by about 120 thousand B/D or 3.6 percent. Deliveries for residual fuel oil and the "other oils" category both resumed their year-to-year declines, with deliveries falling 8.3 percent and 6.1 percent, respectively. The only products to show increases were gasoline, which rose 2.2 percent, and kerosine jet fuel, up by 1.7 percent.

As a result of January's strong imports and weak deliveries, total inventories rose 33 million barrels—in sharp contrast to an average decline for the month of around 8 million barrels in recent past years. Distillate inventories rose contraseasonally by 13 million barrels, versus an average 10 million barrel decline. At the end of January, distillate stocks had climbed to 120 million barrels, matching the level of one year earlier.

PRODUCT SUPPLIED^{1/}

Gasoline

UNUSUAL INCREASE FOR JANUARY.

Gasoline deliveries rose year to year in January for the second month in a row. The increase,

at 2.2 percent, was unusual when compared with the small declines which had persisted for much of last year, and may have been partly related to unusually warm weather which likely contributed to some short-term increases in travel. With recent confirmation of slower economic growth—preliminary GNP data showed only a half percent annual-rate increase from third to fourth quarter—it does not appear that the recent deliveries increases indicate any shift in the underlying flat performance for gasoline of the past several quarters.

The most recent data on miles traveled, however, have not shown any additional weakening, at least through November. For the most recent available months, year-to-year increases in miles traveled have been running around 3 percent, roughly the same as first half 1989's increase. The preliminary nature of

both the deliveries and the miles traveled data, which will both be revised later this year, translate into some uncertainty as to the actual trend in gasoline consumption. Nevertheless, both taken together suggest that consumption continues to be flat.

It should be noted that the data on miles traveled includes diesel vehicles as well as gasoline vehicles. However, since 85 percent of highway fuel use is in the form of gasoline, travel as an indicator of gasoline use is biased only slightly by the somewhat higher estimated growth for diesel traffic than for gasoline traffic. Diesel's role has been increasing, however. Since 1985,

API ESTIMATES

	JANUARY	
	Million B/D	Percent Change
Total domestic deliveries	16.9	(1.5)
Crude production ^{2/}	7.4	(5.5)
Total imports ^{3/}	9.1	14.5
Stocks (million bbl) ^{4/}	1.035	(2.2)

highway diesel consumption has grown about 20 percent, while gasoline use has risen only 7 percent. This pattern is believed to have continued more recently, with recent months' growth in highway diesel estimated at 1.5 to 2 percent despite gasoline being more or less flat.

Distillates

WARM WEATHER CUTS CONSUMPTION.

Following December's record-setting, 30-percent-colder-than-normal weather, January, averaging 25 percent warmer than normal, provided a sharp contrast. Just as December's extremely cold weather brought about a strong surge in distillate demand, January's warmer weather served as a moderating influence on consumption. In fact, although distillate deliveries more commonly increase between December and January, this January's deliveries fell by over 800 thousand B/D or 20 percent from December's level.

Year to year, January's deliveries declined 3.6 percent or about 120 thousand B/D. Since January a year ago was also unusually warm, the effect of weather on the year-to-year comparison is lessened. We estimate that this year's even warmer weather reduced distillate demand by 100 to 150 thousand B/D from a year ago.

Continued, though only moderate, growth in the on-highway diesel sector, partially offset the weather-related decline in heating use. With the slower economic growth and industrial output over the past several months, fuel use in this sector is believed to be growing at only about 20 to 25 thousand B/D year to year. Nevertheless, this is one of the main factors contributing to the underlying growth in distillate demand now estimated at 1 percent or less.

Residual Fuel Oil DELIVERIES RESUME THEIR DECLINE.

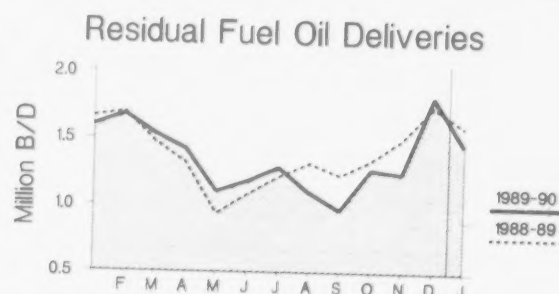
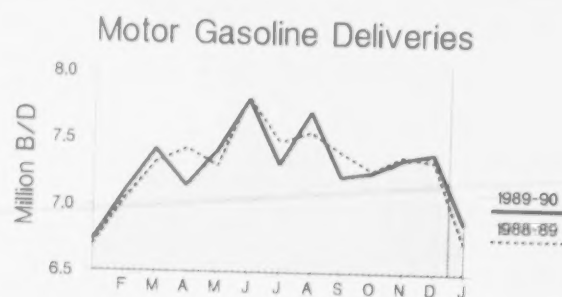
Residual fuel oil deliveries reverted to their previous pattern of year-to-year declines in January. January's 8.3 percent decline contrasted with a roughly 4 percent increase for December, when the cold weather bolstered demand from electric utilities and other users. For August through November, residual fuel oil deliveries had been showing monthly declines averaging 15 percent, year to year.

Reduced demand from electric utilities due to the warm weather is believed to be one of the major factors contributing to the decline. Generation, which had jumped more than 10 percent, year-to-year, in December, is estimated to have been roughly only equal to the year-ago level this January. In addition, the price advantage that domestic bunker sources had previously had over foreign supplies appears to have diminished recently, likely reducing or eliminating any year-to-year increases in this sector of deliveries.

Kerosine Jet Fuel GROWTH MODERATES FROM DECEMBER.

Deliveries of kerosine jet fuel rose 1.7 percent in January—in sharp contrast to December's roughly 20 percent surge. That large increase had apparently been due to use in extending distillate supplies in the face of extremely high weather-related demand. January's much smaller rise is more within the range of kerosine jet fuel deliveries' increases of the recent past, and probably even a bit below underlying consumption trends.

That trend is believed to be similar to the estimated growth in miles flown of around 3 percent in recent months. Though weaker than the roughly 4 percent increase of 1988, air traffic growth has likely picked up slightly from rates which had been nearly flat as recently as mid-1989.



Other Oils

DELIVERIES FALL 6 PERCENT.

Deliveries of "other oils" fell 6.1 percent in January, contrasting with December's unusual 4 percent increase but otherwise roughly in line with recent trends. Before December's year-to-year increase, deliveries had been showing year-to-year declines averaging around 5 percent. Apparently, deliveries, already declining in part because of continued weak deliveries for petrochemical feedstocks, were also weakened in January by weather-related, lower-than-normal demand for propane.

Propane is one of the principal components of liquefied petroleum gases, or LPGs, which in turn are one of the major constituents of "other oils" deliveries. LPGs accounted for about 40 percent, or nearly 1.7 million B/D, of last year's 4.1 million B/D annual total deliveries of "other oils". While propane accounts for more than half of LPG deliveries, ethane accounts for a little less than a third, and butanes the remainder. Nearly

two thirds of LPG supply is extracted from natural gas streams, with the rest coming from net refinery production and imports.

Chemical use accounts for more than half of LPG deliveries; residential and commercial heating (essentially propane) is the next largest single category at about a quarter of LPG usage. It should be noted that LPGs used as refinery inputs are not included in "LPG deliveries" in order to avoid double counting. For example, butane used in gasoline blending, estimated at about 300 thousand B/D, is counted as gasoline deliveries rather than LPG deliveries. Thus, last year's tightening of vapor pressure restrictions, though it had the effect of reducing butanes used in gasoline blending, resulted in an apparent increase in butane deliveries as some of this product was diverted to non-refinery uses.

LPGs as a group have contributed little to overall petroleum demand growth in the past several years. Since 1985, LPG deliveries have increased only about 3.5 percent, while total deliveries have grown about 10 percent.

SUPPLY

Production

OIL DRILLING FALLS, GAS INCREASES.

January's crude oil production continued to decline, falling 430 thousand B/D versus a year ago. Alaska contributed about 75 thousand B/D to the 5.5 percent decline. However, most of the decline came in the lower 48, where the effects of diminished drilling and well servicing of the past several years have continued to reduce production levels.

The decline in oil well completions continued in 1989, though for natural gas, drilling increased for the second year in a row. According to API's recently-released *Quarterly Completion Report*, oil well completions fell 23 percent to a level only one third of that of 1985. Total completions fell 13 percent.

For gas, last year's 9 percent increase in drilling apparently reflects a perception that natural gas markets have been approaching a greater balance between supply and demand than existed earlier in the 1980s. Even with the increases of the past two years, however, natural gas completions were still down by one quarter from 1985 levels. What increases there have been for natural gas drilling have been concentrated in development drilling; in 1989, exploratory gas completions declined an estimated 8 percent. Exploratory oil completions, however, fell much more, dropping 33 percent.

Imports

REPLENISHMENT BOLSTERS IMPORTS.

With domestic production continuing to decline and consumption either growing or holding nearly steady, imports have continued to set records on a nearly regular basis in the past year or two. For January, imports exceeded 9 million B/D for the first month in more than 12 years. January's total imports also accounted for an all-time high monthly share of domestic deliveries—53.9 percent, versus the previous high of 51.8 percent reached in both March and July of 1977. The month's imports were unusually high compared with recent trends, being more than 1 million B/D above what would have been needed to supply January's deliveries in conjunction with typical inventory changes.

January's crude oil production continued to decline, falling 430 thousand B/D versus a year ago.

Though temporary developments pushed imports higher in January, longer-term trends have moved the U.S. supply/demand balance closer to the position where such short-term deviations can easily put total imports above the 50 percent mark. In 1989, total imports averaged 46 percent of domestic usage for the year as a whole.

Product imports rose 13 percent in January from a year ago to nearly 2.9 million B/D, reflecting efforts to replenish supplies after December's extraordinary demand. Distillate imports jumped by nearly two thirds to over half a million B/D, also the highest monthly level ever, and kerosine jet fuel imports rose by two thirds to nearly 140 thousand B/D. Imports of gasoline and components were about 60 percent higher than last January at over 600 thousand B/D, also the highest level ever. Residual fuel oil imports, however, fell 19 percent to 715 thousand B/D due to lower demand and the availability of domestic supplies.

Refinery Operations

DISTILLATE OUTPUT CONTINUES HIGH IN JANUARY.

Recovering from temporary disruptions due to extremely cold weather on the Gulf Coast near the end of December, refineries continued to produce record amounts of distillate fuel oil in January. The month's production approached 3.2 million B/D, up over 6 percent year to year and the highest output for January since the late 1970s. December's production, despite the disruptions due to weather and other factors, had also set a recent-year record of over 3.3 million B/D. Residual fuel oil output increased 23 percent or about 220 thousand B/D, enabling a rebuilding of inventories which had been drawn down substantially in December.

Total input to distillation units was up 1 percent over last January, but because of the emphasis on replenishing distillate supplies, production of other light products declined. Gasoline and kerosine jet fuel production each declined about 2 percent versus a year ago. However, by the end of the month, yields for light products were returning to more typical patterns for January.

Utilization for the month, as traditionally calculated, averaged 87.5 percent, up more than a point from a year ago. Calculated on the basis of capacity normally in actual operation, the rate would have been closer to 91 percent.

Inventories

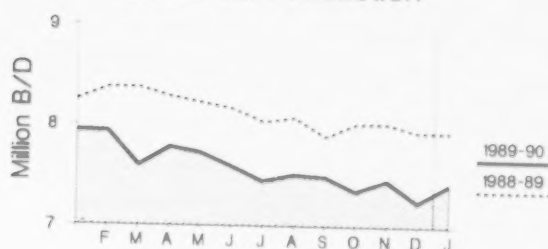
STOCK BUILD CONTRASTS WITH TYPICAL DECLINE.

Though total inventories typically decline in January, the month's high level of imports, along with demand moderated by warmer weather, resulted in a substantial inventory build of 33 million barrels. For the previous five years, January's stock

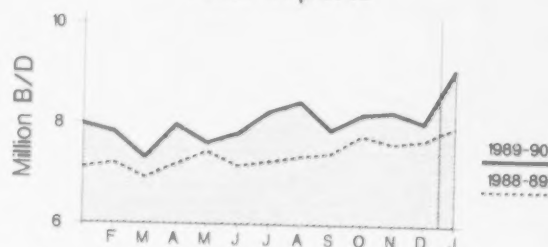
change has averaged an 8 million barrel decline. With the unusually large increase, inventories were only about 2 percent lower than at the end of January 1989.

Most of the increase took place in product inventories. Distillate stocks, in particular, rose 13 million barrels—contrasting with an average 10 million barrel decline in previous Januarys. After December's 14 million barrel draw—the largest for that month in six years—January's contraseasonal increase brought distillate inventories to 120 million barrels, the same level as a year ago. Gasoline stocks rose 17 million barrels, somewhat more than average for January, to 231 million barrels.

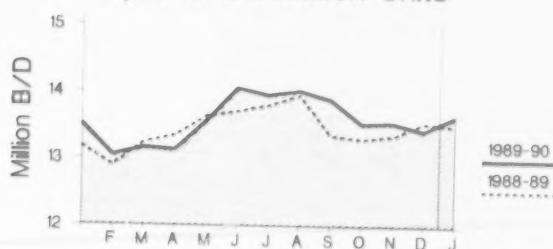
Crude Oil Production



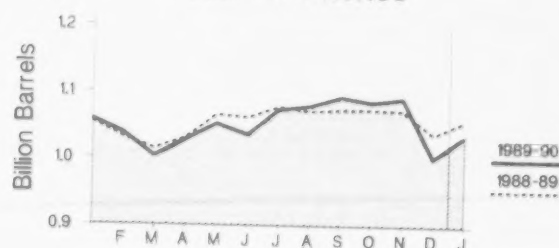
Total Imports



Input to Distillation Units



Total Inventories



- 1/ Total supply, i.e., production plus imports adjusted for net stock change is equal to total products supplied from primary storage. Total products supplied from primary storage less exports is equal to total domestic products supplied. Information contained in this report is derived from information published in the API Weekly Bulletin and is based on historical analysis of the industry. All data reflect the most current information available to the API and include all previously published revisions.
- 2/ Includes lease condensate.
- 3/ API data do not include crude oil imported for the Strategic Petroleum Reserve (SPR) nor crude oil stocks held in the SPR (according to the U.S. Department of Energy, the SPR held approximately 580 million barrels as of January 31, 1990).

ESTIMATED UNITED STATES PETROLEUM BALANCE
(Daily Average in Thousands of 42 Gallon barrels)

Products Supplied/Supply From Primary Storage	JANUARY			YEAR-TO-DATE		
	1990 ¹	1989 ²	% Change	1990 ^{3M}	1989 ²	% Change
Products Supplied:						
Total motor gasoline	6,881	6,732	2.2			
Finished leaded motor gasoline/*	505	980	(48.5)			
Finished unleaded motor gasoline/*	6,376	5,752	10.8			
Naphtha-jet	175	174	0.6			
Kerosine-jet	1,337	1,315	1.7			
Distillate fuel oil	3,178	3,296	(3.6)			
Residual fuel oil	1,463	1,596	(8.3)			
All other oils ⁴	4,123	4,392	(6.1)			
Reclassified ⁵	-210	-293	(28.3)			
Total domestic products supplied	16,947	17,212	(1.5)			
Exports	881	760	15.9			
Total products supplied	17,828	17,972	(0.8)			
Supply:						
Domestic production:						
Crude oil ⁶	7,420	7,850	(5.5)			
Natural gas liquids	1,493	1,653	(9.7)			
Other supply ⁷	836	1,100	(24.0)			
Total domestic supply	9,749	10,603	(8.1)			
Imports:						
Crude oil, total ⁸	6,276	5,456	15.0			
Canadian	528	633	(16.6)			
Other	5,748	4,823	19.2			
Products, total	2,857	2,519	13.4			
Residual fuel oil	715	877	(18.5)			
Other	2,142	1,642	30.5			
Total imports	9,133	7,975	14.5			
Total supply	18,882	18,578	1.6			
Stock change, all oils	1,054	606	*****			
Refinery Operations						
Input to crude oil distillation units	13,651	13,510	1.0			
Operable capacity	15,604	15,689	(0.5)			
Refinery utilization (%) ⁹	87.5	86.1	1.6			
Crude oil runs	13,492	13,330	1.2			
Stocks (millions bbls.)	1990 1989		1989 ²	% Change from		
	Jan.31 ¹⁰	Dec.31 ¹⁰		Previous Month	Year Ago	
Crude oil ⁸	350.0	342.0	333.3	2.3	5.0	
Unfinished oils	104.3	104.6	102.4	(0.3)	1.9	
Total motor gasoline/**	230.8	213.9 _R	248.5	7.9	(7.1)	
Finished leaded motor gasoline/*	16.7	17.4	41.5	(4.0) ¹	(59.8)	
Finished unleaded motor gasoline/*	173.7	159.7 _R	164.2	8.8	5.8	
Naphtha-jet	6.4	5.9	6.6	8.5	(3.0)	
Kerosine-jet	37.2	35.6	37.9	4.5	(1.8)	
Distillate fuel oil	120.4	107.4 _R	120.3	12.1	0.1	
Residual fuel oil	49.8	43.3	47.0	15.0	6.0	
All other oils	136.2	149.7 _R	162.0	(9.0)	(15.9)	
Total all oils	1,035.1	1,002.4 _R	1,058.0	3.3	(2.2)	

/1 Based on API estimated data converted to a monthly basis.

/2 Source: U.S. Department of Energy.

/3 Source:

/4 Includes crude losses.

/5 Beginning with January 1981, U.S. Department of Energy began using a new data collection system which encompasses a method to ascertain the amount of product reclassified during the production phase. So that there will be no double counting of these volumes, they are subtracted from the total domestic products supplied.

/6 API estimate; includes lease condensate.

/7 Includes Unaccounted-for crude oil, Processing gain and Field Production of other hydrocarbons and alcohol.

/8 Data do not include oil imported for the Strategic Petroleum Reserve (SPR) nor crude oil stocks held in the SPR.

/9 Represents "Input to crude oil distillation units" as a percent of "Operable capacity".

/10 Derived by interpolating API weekly stocks data.

/R Revised.

/* Included in motor gasoline.

/** Includes finished leaded, finished unleaded, and motor gasoline blending components stocks.



Monthly Statistical Report

A2575-2

Prepared by the Finance, Accounting, and Statistics Department

Vol. 14, No. 2

MARCH 14, 1990

FEBRUARY 1990

SUMMARY

February's total deliveries were substantially weaker than recent trends would have indicated. Though total deliveries have been showing moderate declines in most of the past eight months, February's 6.5 percent, more than 1 million B/D drop was considerably more than the 1 to 3 percent, year-to-year decreases typical since mid-1989. All major products shared in the month's decline. Excluding residual fuel oil, the underlying trend in consumption over the past several months is estimated at about a one percent decline.

For distillate fuel oil, unusually warm weather was at least partly responsible for that product's decline of over 7 percent; even so, deliveries were somewhat lower than might have been expected, based on weather and previous trends. Gasoline deliveries dropped a little over 3 percent despite unusually favorable driving conditions for a winter month, and kerosine jet fuel deliveries also fell even though air traffic continued to increase. Deliveries of residual fuel oil and "other oils" both continued their patterns of decline which have been apparent since the latter half of last year, with substantial drops of 15 percent and 7 percent, respectively.

February's 8 million B/D of total imports, roughly 1 million B/D lower than January's recent-year high, still amounted to

48 percent of domestic deliveries. Though import dependency as calculated on a monthly basis makes large swings—in 1989, the figure ranged from lows near 40 percent to over 50 percent in July—the longer-term trend has been steadily upwards over the past four years. By last year, total imports' share of domestic deliveries, at 46 percent, had grown to a size nearly half again as large as in 1985.

Crude oil production in February fell nearly 7 percent from a year ago, with roughly one fifth of the 537 thousand B/D decline occurring in Alaska.

Refinery activity, despite February's weak deliveries, was unusually high for the month, with input to distillation units rising over 5 percent versus a year ago. Gasoline output's 5.2 percent increase, combined with the decline in deliveries, contributed to a 16 million barrel gain in that product's inventories for the month. Even with a roughly 2 percent decline in distillate output, softness in deliveries left month-end distillate stocks at 115 million barrels, 5 to 7 million barrels above levels for the same month in the previous two years.

PRODUCT SUPPLIED

Gasoline DELIVERIES FALL UNUSUALLY LARGE 3.2 PERCENT.

The pattern of declines for gasoline deliveries apparent during most of the second half of last year resumed in February. That pattern had been interrupted in December and January, when deliveries had risen 1 to 2 percent, year to year—in contrast with the latter part of 1989 when deliveries had been generally weak and decreasing slightly. For February, deliveries reverted to the decline pattern, though the 3.2 percent drop for the month appears greater than can be explained by estimated consumption trends.

Short term divergence between deliveries and consumption, however, has not been uncommon, and the events of the past three months provide one illustration of this. Even when there are no practical difficulties in measurement, deliveries can differ from actual consumption because of changes in storage by distributors and end users, for which data are not normally available. Imprecision and inaccuracies in the data can also contribute to the divergence.

In December, extremely harsh weather could be expected to have discouraged less essential travel, depressing actual gasoline consumption. Recently-available data on miles traveled, in fact, showed only a 0.3 percent increase for that month, contrasting with an average increase of about 3 percent in highway travel for the previous five months.

Gasoline deliveries, however, showed the reverse of that pattern, rising about 1 percent in December after falling 0.6 percent on average for July to November. The disparity between travel and gasoline deliveries in December may have been at least partly the result of purchases beyond current needs by some concerned that the high demand on refineries to produce heating oil might have had a tightening effect on gasoline supplies.

	API ESTIMATES		YEAR-TO-DATE	
	FEBRUARY		FEBRUARY	
	Million B/D	Percent Change	Million B/D	Percent Change
Total domestic deliveries	16.6	(6.5)	16.8	(3.8)
Crude production ^{2/}	7.2	(6.9)	7.3	(6.6)
Total imports ^{2/}	8.0	2.5	8.7	9.6
Stocks (million bbl) ^{2/}	1,045	0.7	na	na

Just as December's severe weather discouraged travel, January's unusually mild weather likely put travel above trend for the month, explaining at least part of that month's deliveries increase. But if weather helps to explain January's increase in deliveries, February's also-mild weather would have been expected to have had a roughly similar positive effect. For this reason, it appears that February's deliveries were likely weaker than actual consumption, which may have even increased slightly, year to year. The underlying trend, however, is still believed to be flat to slightly declining.

Distillates

WARM WEATHER WEAKENS DEMAND.

Weather for the main part of the winter (December through February) has averaged close to normal—but it has hardly been an "average" winter once the variation around that average is taken into account. Following the coldest December in more than 70 years for the Northeast and an extremely mild January, February, too, turned out to be much warmer than normal, with a consequent softening of distillate deliveries.

In February, distillate deliveries dropped 7.2 percent or 250 thousand B/D, with heating degree days for the month averaging more than 20 percent warmer than last February. With the warmer weather estimated to have reduced heating oil demand by around 200 thousand B/D from a year ago and small but positive growth in on-highway diesel and industrial usage, February's deliveries decline, as with gasoline, appears to have been greater than that indicated for consumption.

Residual Fuel Oil

FUEL SWITCHING KEEPS DELIVERIES IN DECLINE.

Residual fuel oil continued weak in February, falling 15 percent year to year. Except for an increase in December relat-

ed to the cold weather, which added to demand for residual fuel oil both as a heating fuel and as an input for oil-fired electricity generation, residual fuel oil has been showing year-to-year declines since last August. In February, electric utility demand is believed to have been weak for the second month in a row due in part to a weather-related drop in electricity generation. February's electricity output is estimated to have declined about 4 percent, year to year.

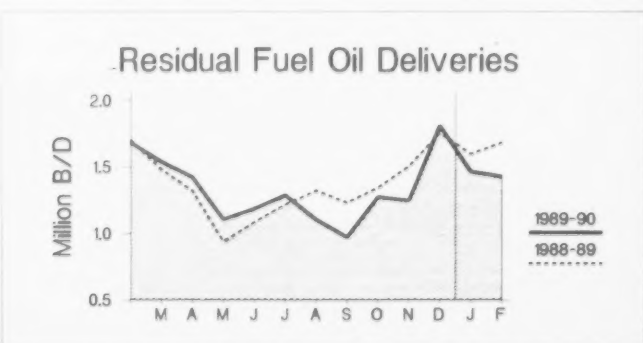
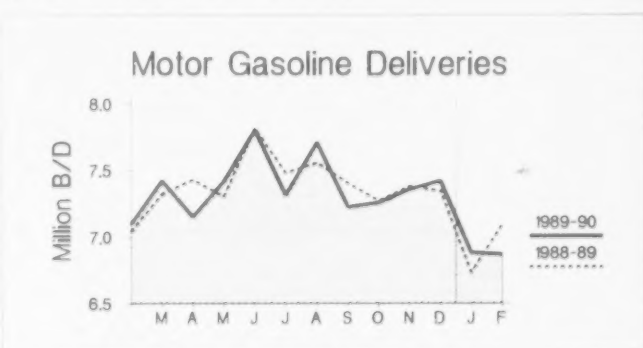
However, even without the warmer weather, residual fuel oil use in the electric utility and industrial sectors has continued to be depressed because of its cost disadvantage relative to natural gas. Spot residual fuel oil prices in February averaged roughly 20 percent or 50 cents per million BTU higher than a year ago, while spot gas prices were roughly even. Thus, though prices paid by utility and industrial users depend in part on local market conditions, existing contracts, and transportation costs, users with fuel switching capability have apparently continued to favor natural gas over residual fuel oil.

The preference for gas over residual fuel oil was clearly apparent in the fourth quarter (most recent data available). Though electricity generation rose 6.7 percent for the quarter (in part because of strong electricity demand in December), residual fuel oil consumption at electric utilities fell more than 14 percent. Natural gas consumption for generation, however, jumped nearly 30 percent for the same period.

Kerosine Jet Fuel

TRAFFIC UP, DELIVERIES DOWN.

Although kerosine jet fuel deliveries declined by 4.5 percent in February, consumption is still believed to be increasing moderately. Adjusting for a spike in December deliveries (attributed to blending with heating oil), the trend in product supplied over the past year has averaged about a 2 percent increase, compared with an estimated growth in airline seat miles of 1.8 percent.



Air fare discounts at home have contributed to a moderate acceleration in domestic travel in recent months. However, it is international travel which has been the driver for most of the industry's growth. International passenger mileage surged by approximately 18 percent in January (the latest month for which data are available) compared with a 3.5 percent escalation in domestic travel. For 1989, international passenger miles rose an estimated 11.2 percent while domestic travel grew by 0.9 percent. Airlines have been able to absorb some of the growth the past few months by filling otherwise empty seats. On average, load factors have been up nearly a full point since November.

Growth in international passenger mileage (now over one quarter of the total) has resulted not only from a rise in passenger enplanements, but also from an ongoing trend in which the average length of flights has been increasing. Changing destination points for international travel cast light on why flights have been getting longer. Transportation Department data show that while travel on Atlantic routes represented the largest share of international travel last year with 49.5% of airline seat miles, trans-Pacific travel made marked increases in its share of the total. In 1989, capacity on Pacific routes grew by over 23 percent compared to 7 percent and 4 percent growth on Atlantic and Latin American routes, respectively. Trans-Pacific seat miles now make up nearly 35 percent of the international total (up from 29 percent in 1985).

The large increases in international travel early this year and significant compositional changes in international flight patterns last year can be explained in part by weakened trans-Atlantic travel last year following the Pan-Am/Lockerbie, Scotland disaster. The 6.5 percent growth in passenger miles on Atlantic routes in 1989 was significantly smaller than the 18-20 percent growth witnessed in the previous two years.

SUPPLY

Production FALLOFF IN OUTPUT UNABATED.

Domestic crude oil production fell 6.9 percent, or more than one-half million B/D in February. Alaska's output decline of 6 percent accounted for roughly one-fifth of the overall drop.

Though the slippage in Alaskan production has been evident for the past year or two, the bulk of the decline in domestic crude oil production since 1985 has been in the onshore lower 48. From 1985 to 1989, onshore lower 48 output fell more than 20 percent, accounting for nearly 90 percent of the 1.4 million B/D decline in domestic crude oil output—the result of the lower level of drilling and of servicing existing wells following the major oil price drop of 1986.

But offshore production has declined as well. Over the same period, offshore production fell about 10 percent to 1.1 million B/D, with an increase in Alaskan offshore output only partially offsetting a decline for offshore lower 48. As a result, the offshore's share of domestic crude oil output has remained in the 14 to 15 percent range, though according to government estimates, nearly 40 percent of undiscovered recoverable oil in the U.S. lies offshore.

Other Oils

DECLINE CONTINUES IN FEBRUARY.

In February, deliveries in the "other oils" category continued the decline which has persisted since the middle of last year. However, the estimated 7.1 percent decrease was somewhat larger than the average for recent previous months—for the second half, deliveries of "other oils" had fallen about 4 percent.

February's unusually warm weather undoubtedly cut into propane consumption for heating purposes, and demand for petrochemical feedstocks continued to be weaker than a year ago. Ethane, deliveries of which had fallen 10 percent last year partly as a result of economics favoring heavier feedstocks, was still at a cost disadvantage compared with petroleum-derived feedstocks. Naphtha and gasoil deliveries for petrochemical use, however, are also believed to have declined from a year ago, continuing last year's drop which had averaged 3 percent.

With spring approaching, deliveries of asphalt, which account for close to one-half million B/D or approximately 11 percent of "other oils" deliveries, normally begin to rise. Asphalt deliveries have increased by almost 12 percent in the past 6 years—paving asphalt, which accounts for 88 percent of demand, rose 22 percent while non-paving asphalt, used mainly in construction materials, fell 31 percent.

Since 1984 the total mileage of paved roads—94 percent of which have asphalt surfaces—has increased only about 4 percent. But because of the deteriorating condition of the roads, most highway funds have been spent on resurfacing and widening, and, with heavier traffic, the thickness of the new surface has increased. Because weather conditions impact heavily on highway construction, asphalt usage is typically 2.5 to 3 times higher between May and October than during the rest of the year.

Imports

DOWN FROM JANUARY BUT HIGHER THAN 1989 AVERAGE.

February's imports subsided by roughly 1 million B/D from January's recent-year high, but, at 8.0 million B/D, still slightly exceeded last year's average. Total imports' share of domestic deliveries also dropped to 48 percent from January's record high.

Import dependency as calculated on a monthly basis can fluctuate considerably—last year's monthly percentages ranged from lows near 40 percent to a high of over 50 percent in July. Though a substantial part of the variability comes from normal seasonal variation in both imports and deliveries, short-term developments such as unusual weather or shifts in inventory strategies play a major role as well. But although the data can be variable on a short term basis, the longer-term trend is still apparent. Since 1985, total imports' share of domestic deliveries has increased by an average 3.5 percentage points per year as demand grew and crude oil production declined.

February's product imports fell 13.5 percent, year to year, after January's surge. Imports of gasoline and components were down 128 thousand B/D to 362 thousand B/D, at the low end of the range of the past twelve months but coming after extremely high imports in January of around 600 thousand B/D. Distillate

imports, however, though down from January, were still up slightly from last February at 332 thousand B/D. Residual fuel oil imports continued to be weak due to a combination of lower demand and the relative cost of imports versus domestic supplies, falling 222 thousand B/D to 641 thousand B/D.

Refinery Operations GASOLINE OUTPUT JUMPS 5 PERCENT.

Input to distillation units jumped 5.2 percent from a year ago in February, with the increased output continuing to replenish supplies after December's extraordinarily high demand. Utilization as traditionally calculated averaged close to 88 percent of "operable", i.e. reported, capacity, but based on capacity in actual operation utilization exceeded 90 percent—substantially higher than the 84 to 87 percent rates for same month in the previous three years.

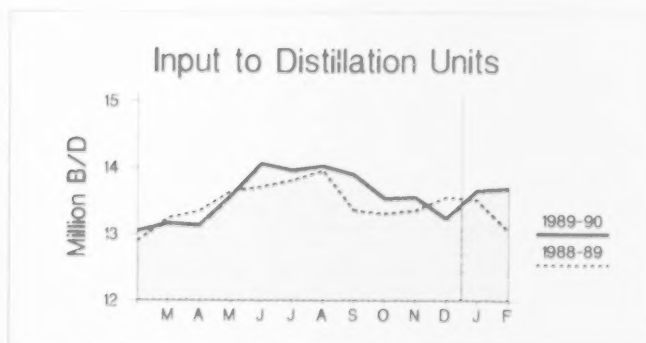
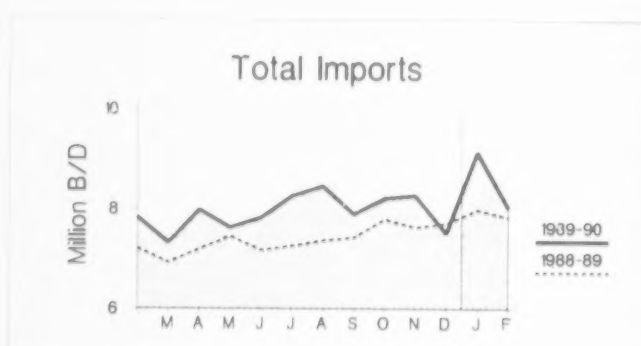
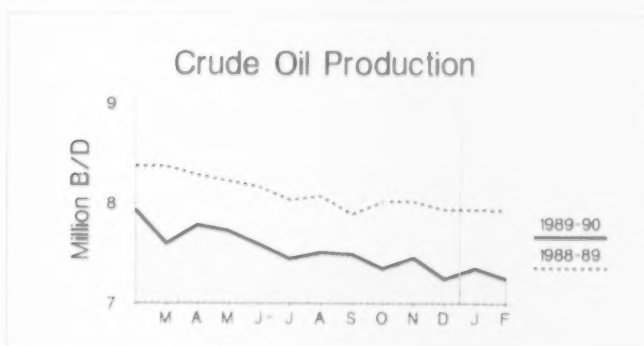
As a result of high refinery runs, gasoline output rose 5.2 percent. Distillate output, reflecting the drop in deliveries and inventories which were already above February levels for recent previous years, declined about 2 percent. Residual fuel oil output continued strong, rising 14 percent over last February.

Inventories CONTRARY TO USUAL PATTERN, STOCKS RISE.

For only the second time in the past ten years, total stocks rose during February. The 9 million barrel increase contrasts with an average decline of 29 million barrels for the same month in the previous five years. The increase brought inventories to a level slightly ahead of a year ago for the first time since November.

Because of continued warm weather, distillate stocks declined only 6 million barrels, considerably less than the previous-year average of about 19 million barrels. At 115 million barrels, distillate inventories ended the month 5 to 7 million barrels higher than for the same month in the previous two years. Gasoline stocks rose 16 million barrels, continuing to replenish inventories that had been drawn down earlier as refineries had emphasized production of distillate in response to December's high demand. At month-end, gasoline inventories were roughly equal to the level one year earlier.

Crude stocks fell by 6 million barrels from January's level of nearly 350 million barrels, but were still 3 percent higher than a year ago.



- 1/ Total supply, i.e., production plus imports adjusted for net stock change is equal to total products supplied from primary storage. Total products supplied from primary storage less exports is equal to total domestic products supplied. Information contained in this report is derived from information published in the API Weekly Bulletin and is based on historical analysis of the industry. All data reflect the most current information available to the API and include all previously published revisions.
- 2/ Includes lease condensate.
- 3/ API data do not include crude oil imported for the Strategic Petroleum Reserve (SPR) nor crude oil stocks held in the SPR (according to the U.S. Department of Energy, the SPR held approximately 581 million barrels as of February 28, 1990).

ESTIMATED UNITED STATES PETROLEUM BALANCE
(Daily Average in Thousands of 42 Gallon barrels)

Products Supplied/Supply From Primary Storage	FEBRUARY			YEAR-TO-DATE		
	1990 ¹	1989 ²	% Change	1990 ^{3N}	1989 ²	% Change
Products Supplied:						
Total motor gasoline	6,868	7,095	(3.2)	6,875	6,904	(0.4)
Finished leaded motor gasoline/*	467	975	(52.1)	487	978	(50.2)
Finished unleaded motor gasoline/*	6,401	6,120	4.6	6,388	5,926	7.8
Naphtha-jet	184	200	(8.0)	179	186	(3.8)
Kerosine-jet	1,270	1,330	(4.5)	1,316	1,322	(0.5)
Distillate fuel oil	3,161	3,411	(7.3)	3,170	3,351	(5.4)
Residual fuel oil	1,425	1,681	(15.2)	1,452	1,636	(11.2)
All other oils*	3,867	4,161	(7.1)	4,007	4,282	(6.4)
Reclassified/*	-161	-113	42.5	-186	-207	(10.1)
Total domestic products supplied	16,614	17,765	(6.5)	16,813	17,474	(3.8)
Exports	985	875	12.6	930	815	14.1
Total products supplied	17,599	18,640	(5.6)	17,743	18,289	(3.0)
Supply:						
Domestic production:						
Crude oil/*	7,248	7,785	(6.9)	7,301	7,819	(6.6)
Natural gas liquids	1,437	1,601	(10.2)	1,466	1,629	(10.0)
Other supply ⁷	1,208	704	71.6	1,022	912	12.1
Total domestic supply	9,893	10,090	(2.0)	9,789	10,360	(5.5)
Imports:						
Crude oil, total*	5,730	5,178	10.7	6,045	5,324	13.5
Canadian	568	622	(8.7)	553	627	(11.8)
Other	5,162	4,556	13.3	5,492	4,697	16.9
Products, total	2,288	2,646	(13.5)	2,613	2,579	1.3
Residual fuel oil	641	863	(25.7)	687	870	(21.0)
Other	1,647	1,783	(7.6)	1,926	1,709	12.7
Total imports	8,018	7,824	2.5	8,658	7,903	9.6
Total supply	17,911	17,914	0.0	18,447	18,263	1.0
Stock change, all oils	312	-726	****	704	-26	****
Refinery Operations						
Input to crude oil distillation units	13,691	13,011	5.2	13,676	13,273	3.0
Operable capacity	15,614	15,694	(0.5)	15,609	15,691	(0.5)
Refinery utilization (%) ⁹	87.7	82.9	5.8	87.6	84.6	3.5
Crude oil runs	13,518	12,774	5.8	13,510	13,066	3.4
	1990		1989 ²	% Change from		
Stocks (millions bbls.)	Feb. 28 ¹⁰	Jan. 31 ¹⁰	Feb. 28	Previous Month	Year Ago	
Crude oil/*	343.4	349.6R	332.7	(1.8)	3.2	
Unfinished oils	108.1	104.3	104.7	3.6	3.2	
Total motor gasoline/**	246.2	230.7R	247.1	6.7	(0.4)	
Finished leaded motor gasoline/*	14.9	16.7	39.5	(10.8)	(62.3)	
Finished unleaded motor gasoline/*	186.8	173.6R	164.1	7.6	13.8	
Naphtha-jet	6.4	6.4	6.4	0.0	0.0	
Kerosine-jet	39.8	36.5R	37.4	9.0	6.4	
Distillate fuel oil	114.8	120.4	107.5	(4.7)	6.8	
Residual fuel oil	50.0	49.8	46.0	0.4	8.7	
All other oils	136.0	138.3R	155.9	(1.7)	(12.8)	
Total all oils	1,044.7	1,036.0R	1,037.7	0.8	0.7	

/1 Based on API estimated data converted to a monthly basis.

/2 Source: U.S. Department of Energy.

/3 Source: API.

/4 Includes crude losses.

/5 Beginning with January 1981, U.S. Department of Energy began using a new data collection system which encompasses a method to ascertain the amount of product reclassified during the production phase. So that there will be no double counting of these volumes, they are subtracted from the total domestic products supplied.

/6 API estimate; includes lease condensate.

/7 Includes Unaccounted-for crude oil, Processing gain and Field Production of other hydrocarbons and alcohol.

/8 Data do not include oil imported for the Strategic Petroleum Reserve (SPR) nor crude oil stocks held in the SPR.

/9 Represents "Input to crude oil distillation units" as a percent of "Operable capacity".

/10 Derived by interpolating API weekly stocks data.

/R Revised.

/* Included in motor gasoline.

/** Includes finished leaded, finished unleaded, and motor gasoline blending components stocks.



Monthly Statistical Report

Prepared by the Finance, Accounting, and Statistics Department

APRIL 18, 1990

Vol. 14, No. 3

MARCH 1990

SUMMARY

Because of their continued weakness in March, deliveries for the first quarter as whole fell 3.6 percent—a significant drop, compared with the 1.1 percent average decline for the last half of last year, and the largest quarterly decline since 1983. For March, deliveries decreased 3.3 percent. Deliveries of all major products for the month fell except for kerosine jet fuel, which rose only 1.7 percent. Gasoline deliveries declined slightly, while continued warm weather contributed to distillates' nearly 6 percent drop. Deliveries of residual fuel oil and of "other oils" both continued their decreases evident since the middle of last year, falling nearly 7 percent and 6 percent, respectively.

The quarter's weak deliveries were in part the result of unusually mild weather, which averaged about 15 percent warmer than a year ago and accounted for an estimated 2 percentage points of the decline. Fuel switching from residual fuel oil also contributed to the quarter's decrease. Nevertheless, we estimate that slower economic growth has reduced the underlying rate of consumption, even excluding these factors, to around a 1 percent decline.

Crude oil production for the first three months of this year fell about 350 thousand B/D or 4.5 percent against last year's first quarter, even though the comparison was against temporarily reduced production a year ago related to the tanker accident near Valdez. Without the interruption in Alaskan production last March to complicate the comparison, the first

quarter decline would have been close to half a million B/D. In the lower 48, where production fell 5.7 percent for the first quarter, output continued to be surpassed by crude oil imports. First quarter crude oil production in the lower 48 averaged 5.5 million B/D, compared with 6.0 million B/D in crude oil imports for the same period.

Though the effect on imports of the first quarter's decline in deliveries would have more than compensated for the drop in domestic crude oil production, imports still rose nearly 9 percent to 8.4 million B/D due to substantial inventory rebuilding during much of the quarter. However, without the quarter's unusually warm weather and the anomaly in the year-to-year comparison for crude oil production, the gap between domestic supplies and consumption would have continued to grow.

Refinery activity in March slowed from February's high level, falling more into line with previously-observed seasonal patterns for that time of year. However, compared with last March, input to distillation units was off only 0.6 percent despite the substantially larger decline in deliveries.

Though product stocks' decrease in March was somewhat larger than average at 28 million barrels, crude oil stocks rose a substantial 22 million barrels to 365 million barrels, the top of their range of the past several years. As a result, total inventories slipped only 6 million barrels, about one-third the recent-year average for the month.

PRODUCT SUPPLIED

Gasoline DELIVERIES FALL 1.5 PERCENT FOR THE QUARTER.

Gasoline deliveries for March, though declining less than in February, still fell 0.7 percent, year to year. For the quarter,

deliveries were off 1.5 percent, more than a percentage point greater than the 0.3 percent decrease for last year's second half. At least part of the greater decline rate may reflect further slackening in consumption, based on economic and other developments.

First, the slowing of economic growth would be expected to have had a moderating influence on travel. Growth in real disposable income had already been slipping in 1989, from 4.5 percent (year to year) in the first quarter to 3.6 percent in the fourth quarter. By the first quarter of this year, preliminary data for the

first two months suggest that real disposable personal income rose only 2 to 2.5 percent. Second, prices in this year's first quarter, adjusted for inflation, were roughly 6 percent higher than a year ago, and this also would be expected to have had a small moderating influence on demand.

Unlike what might be inferred from economic developments, available data on travel have shown little, if any, slowing in growth. For January, miles traveled, which had risen 2.8 percent

	API ESTIMATES		YEAR-TO-DATE	
	MARCH			
	Million B/D	Percent Change	Million B/D	Percent Change
Total domestic deliveries	17.3	(3.3)	17.0	(3.6)
Crude production ²	7.4	(1.6)	7.4	(4.5)
Total imports ²	8.0	8.7	8.4	8.9
Stocks (million bbl) ²	1,054	5.0	na	na

for last year as a whole, rose 2.4 percent, year to year. However, travel in winter months tends to be more variable than at other times of the year due to effects of weather on road conditions. Both Januarys had been unseasonably warm, likely giving a temporary boost to travel in both periods but making the year-to-year comparison less reliable as an indicator of more recent trends. Taken together, the data suggest that underlying consumption has recently been declining at perhaps 0.5 to 1 percent, year to year.

Distillates

REDUCED HEATING DEMAND LOWERS DELIVERIES.

Unseasonably warm weather for the third month in a row contributed to distillate fuel oil's continued year-to-year decline in March, with deliveries falling close to 200 thousand B/D or 5.7 percent. For the quarter, heating degree days averaged roughly 15 percent warmer than last year, and deliveries fell 5.5 percent or about 190 thousand B/D.

However, even if adjusted for weather, the quarter's deliveries would have shown an estimated 1 percent decline. Deliveries in the latter half of last year averaged around a 1 percent increase (also adjusted for weather, including December's severe cold). With continued, though slower, economic growth believed to be continuing so far this year, it appears unlikely that underlying consumption has slipped into a decline. Mainly because of estimated slight growth in on-highway usage, we estimate that the underlying consumption trend has still been one of marginal growth.

On-highway usage, in fact, has been the main source of the growth in distillate demand in recent years. Of the overall 10 percent, 285 thousand B/D increase in distillate deliveries between 1985 and 1989, nearly four-fifths is estimated to have come from growth in on-highway diesel consumption; moderate amounts were also contributed by electric utility consumption, vessel bunkering, and off-highway usage. Other than for short-term, weather-related swings, heating usage has been relatively stable over that period.

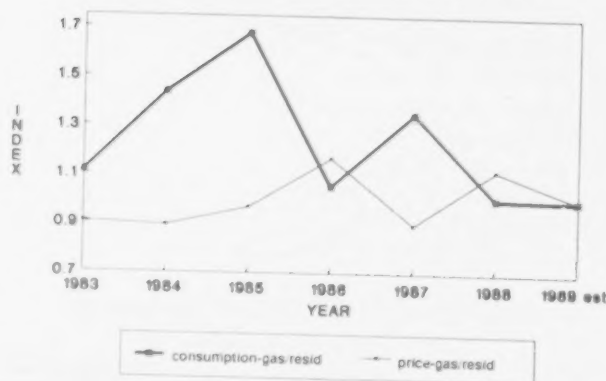
Residual Fuel Oil **WEATHER AND SWITCHING CUT UTILITY USAGE.**

Residual fuel oil deliveries fell 6.8 percent in March, continuing a slide which has persisted since last August. Demand weakness for the month is believed to be both price and weather related as the effects of relatively high residual fuel prices early in the winter and unseasonably mild weather during early 1990 were still being felt in March.

Consumption of residual fuel by electric utilities (typically representing between a third and a half of total residual fuel oil demand) began falling relative to natural gas shortly after residual fuel prices started climbing last spring. Fuel substitution within the electric utility sector has been more responsive to relative prices than within other sectors; consequently, the electric utility share of total residual fuel consumption typically has fallen when price is high relative to other fuels.

As the accompanying graph illustrates, substitution by electric utilities between residual fuel and natural gas has mirrored changes in relative prices for the two fuels. In the figure, the

Electric Utility Consumption and Price Natural Gas and Residual Fuel Oil



Source: EIA Monthly Energy Review

ratio of natural gas prices to residual fuel oil prices paid by electric utilities, and a similar ratio for consumption, are indexed (1989=1.00) and the relationship between price and consumption of the two fuels are compared.

After peaking in mid-January, residual fuel prices have fallen steadily and by the end of March were down by about 15 percent from their March 1989 level. Spot natural gas prices have generally moved in the same direction as residual fuel prices, but with significantly smaller magnitude. At the end of March, spot gas prices were down by about 7 percent versus March 1989.

However, first quarter weather has been mild across much of the country, including the Northeast and mid-Atlantic regions where use of residual fuel oil is concentrated. The nine states in these two regions account for nearly 65 percent of U.S. electric utility use of residual fuel oil (with most of this in New York and Massachusetts). Versus March of last year, heating degree days in the East were down about 10 percent and despite increases in electricity demand late in the month, electricity output in Mid-Atlantic and New England states was down slightly for the month as a whole. The mild weather can be expected to have had an even greater impact on residential and commercial natural gas demand; consequently, electric utilities are believed to have had a more ready supply of natural gas than during typical winter heating months.

While demand for residual fuel in the electric utility sector is contingent on its price relative to natural gas, demand for residual fuel oil as a bunker fuel is influenced by prices in the U.S. relative to prices in foreign ports and by the amount of total U.S. ocean-borne imports and exports. Bunker fuel prices in March were moderately more expensive in the northeast U.S. than in Western Europe. However, the price differentials for the month were significantly smaller than during December and January. Since January, prices in California (a state which accounts for about 40 percent of the fuel oil laden in the U.S. on vessels involved in foreign trade) have become more competitive with Far East prices as well.

Kerosine Jet Fuel **DELIVERIES LAG BEHIND AIR TRAFFIC.**

Deliveries of kerosine jet fuel were up in March; however, the 1.7 percent increase during the month lagged behind recent growth in airline travel. Product supplied was up 0.5 percent

during the first quarter while airline miles flown are believed to have been up approximately 4.5 percent.

Short-term divergence between growth in air traffic and kerosine jet fuel deliveries is not unusual. However, trends in growth of each do tend to follow similar patterns over longer periods of time. Over the most recent twelve months (excluding December, during which kerosine jet fuel is believed to have been blended with distillate), both deliveries and available airline seats grew at rates between 1 and 2 percent.

Variability in deliveries may be related in part to changing short-term price expectations by purchasers. Jet fuel prices fell considerably during the first quarter, following substantial increases in December and early January coinciding with the weather-related blending demand mentioned above. Delayed replenishment of end-user inventories in the midst of falling prices may have been at least partly responsible for the relative weakness of the first quarter's deliveries in comparison with air traffic.

Other Oils DECLINE CONTINUES.

Deliveries of "other oils" continued their decline in March, falling 6.0 percent. For the quarter as a whole, deliveries fell 7.4 percent in part because of the warm weather's effect on propane deliveries for heating; however, even adjusted for weather, deliveries would have fall-

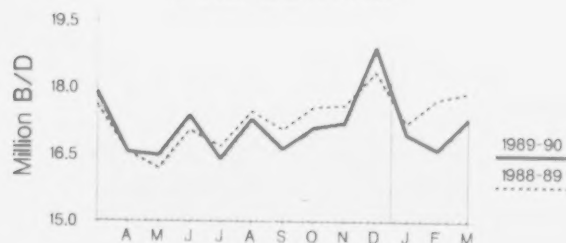
en an estimated 5 to 6 percent, in large part due to apparent continued slackness in demand for petrochemical feedstocks.

Developments for petrochemical feedstocks deliveries are significant, since they constitute a major portion of the "other oils" category. At about 1.4 million B/D, they account for one-third of "other oils" and about 8 percent of total petroleum deliveries. Petroleum deliveries for petrochemical use are estimated to have risen nearly 20 percent between 1985 and 1989. The LPG feedstocks—including propane, butane, and particularly ethane—account for two-thirds of the total; about four-fifths of these feedstocks are extracted from natural gas streams. The remainder of the feedstocks consists of naphtha and gasoil produced at refineries.

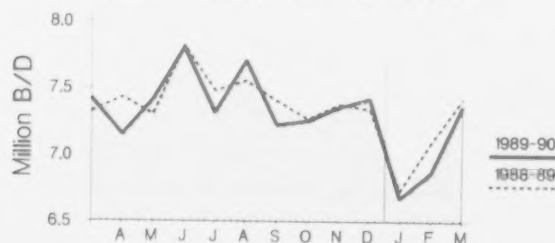
The lighter feedstocks tend to produce proportionately more ethylene, one of the primary petrochemical building blocks, while output from heavier feedstocks tends to be a more complex slate of compounds. Thus, the comparative demands for the various feedstocks depend not only on their relative cost and the extent to which plants can substitute feedstocks, but on shifts in the demand for derivatives as well.

Unlike the "major" products, deliveries data on petrochemical feedstocks represent a transfer out of the petroleum data system rather than product supplied for immediate end use. Thus, though nearly 85 percent of feedstock deliveries are reported as taking place in the Gulf Coast region (PAD III), end-use consumption is more broadly distributed geographically.

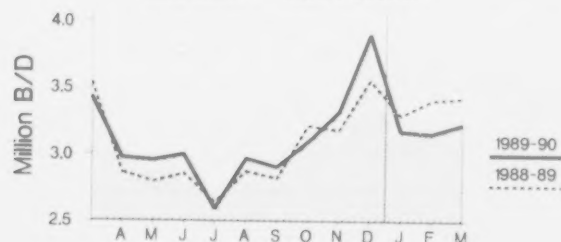
Total Deliveries



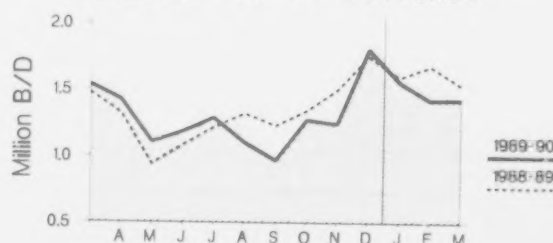
Motor Gasoline Deliveries



Distillate Deliveries



Residual Fuel Oil Deliveries



SUPPLY

Production

DECLINE TREND MASKED BY YEAR-AGO EVENTS.

Crude oil production declined nearly 350 thousand B/D or 4.5 percent for the first quarter.

However, the year-to-year decline was smaller than it otherwise would have been due to temporary developments in Alaska for the year-ago period. In late March and early April of last year, North Slope output was curtailed due to restrictions on shipping traffic following the tanker accident near Valdez. As a result, Alaskan production averaged less than 1.7 million B/D last March compared with nearly 2.0 million B/D in February of that year.

For Alaska, in particular, the year-to-year comparison for this year's first quarter shows only a minimal, 12 thousand B/D decline in crude oil output because production, averaged over the first quarter of 1989, was roughly 100 thousand B/D below trend for that state. Meanwhile, lower 48 output continued to decline in this year's first quarter, dropping 335 thousand B/D. Thus, without the loss of North Slope production last year, this year's first quarter decline in domestic crude oil production as a whole would have amounted to about 450 thousand B/D or nearly 6 percent.

Imports

HIGHEST QUARTERLY LEVEL SINCE 1979.

Total imports in March, though down slightly from recent prior months, still exceeded year-ago

levels by 8.7 percent. For the quarter as a whole, imports reached nearly 8.4 million B/D, up almost 9 percent from the same period in the prior year and the highest quarterly level since 1979.

Deciphering a longer-term trend from import data is complicated by the many factors that influence short-term swings in imports. One such factor is inventory behavior, since a short-term build or draw from inventory beyond normal patterns can raise imports above or lower them below the longer-term trend. For example, in the first quarter of this year, the 640 thousand B/D dropoff in demand exceeded the decline in domestic crude production, implying a decline in the underlying import trend. But because of the unusual inventory build of over half a million B/D during the first quarter (and a less than average decline one year earlier), imports for the quarter jumped nearly 700 thousand B/D.

There is more to the story, however, because deliveries were unusually weak in the first quarter due to warm weather and other factors, while the year-to-year decline trend in crude oil production was partly masked by the temporary dropoff in Alaskan production for the year-ago period. Adjusting for these factors implies an underlying growth rate in imports for the quarter of roughly 200-300 thousand B/D.

Product imports fell 453 thousand B/D or nearly 19 percent for March, and despite unusually strong imports for January, declined 113 thousand B/D or 4.5 percent for the quarter from relatively high levels one year earlier. The major contributor to the quarter's decline was residual fuel oil, which fell 173 thousand B/D or 21 percent because of continued weak demand. Imports of gasoline and components fell 35 thousand B/D or 8 percent. Distillate imports, though down by one third in March, were up slightly for the quarter as a whole because of extremely high import levels in January following extraordinarily cold weather in December.

Refinery Operations

ACTIVITY'S DECLINE LESS THAN FOR DELIVERIES.

February and March are typically among the lowest months of the year for refinery utilization because of refinery turn-

arounds, but this February's output had been unusually strong. In March, however, refinery activity slackened. Utilization of capacity in actual operation, which had exceeded 90 percent in January and February, slipped to less than 87 percent in March. (Utilization on the basis of reported capacity amounted to 83.7 percent for the month). But year to year, input to distillation units was off only 0.6 percent for March, even though deliveries dropped by a substantially larger amount.

Mirroring the declines in deliveries of gasoline and distillate fuel oil, output of these products slipped 0.5 percent and 3.2 percent, respectively, compared with last March. Kerosine jet fuel production rose 4.4 percent and residual fuel oil output, 4.9 percent.

Inventories

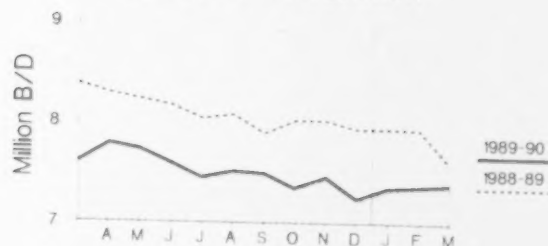
CRUDE STOCKS RISE MORE THAN 20 MILLION BARRELS.

March's 6 million barrel decline in total stocks was about one third the recent-year average of about 19 million

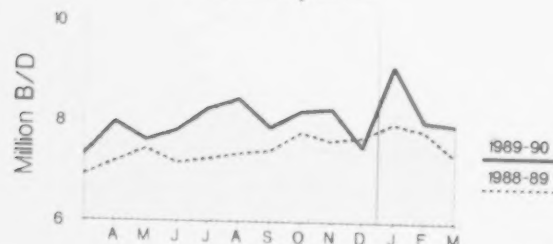
barrels. The month's smaller decline was the net result of a 28 million drop in product stocks combined with a substantial, 22 million barrel jump in crude oil inventories due to continued strength in crude oil imports. Crude oil stocks at month-end, in fact, were at the top of their approximately 325-to-365 million barrel range of the past three years.

Gasoline stocks typically decline in March, and though the 19 million barrel drop this March was greater than the recent-year average of 12 million barrels, ending stocks were only slightly below their level of a year ago. Distillate stocks fell 13 million barrels to 102 million barrels as the end of the heating season approached, though warm weather helped keep stocks about 6 million barrels higher than for one year earlier.

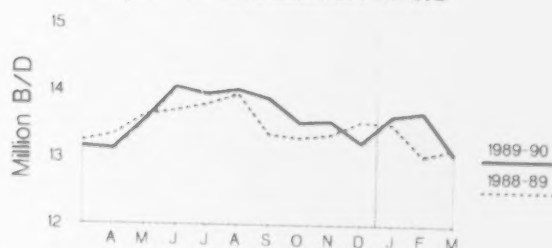
Crude Oil Production



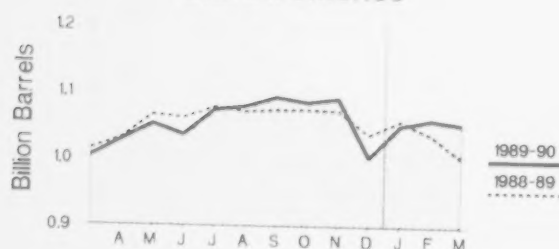
Total Imports



Input to Distillation Units



Total Inventories



- 1/ Total supply, i.e., production plus imports adjusted for net stock change is equal to total products supplied from primary storage. Total products supplied from primary storage less exports is equal to total domestic products supplied. Information contained in this report is derived from information published in the API Weekly Bulletin and is based on historical analysis of the industry. All data reflect the most current information available to the API and include all previously published revisions.
- 2/ Includes lease condensate.
- 3/ API data do not include crude oil imported for the Strategic Petroleum Reserve (SPR) nor crude oil stocks held in the SPR (according to the U.S. Department of Energy, the SPR held approximately 582 million barrels as of March 31, 1990).

ESTIMATED UNITED STATES PETROLEUM BALANCE
(Daily Average in Thousands of 42 Gallon barrels)

Products Supplied/Supply From Primary Storage	MARCH			YEAR-TO-DATE		
	1990 ¹	1989 ²	% Change	1990 ^{3R}	1989 ²	% Change
Products Supplied:						
Total motor gasoline	7,366	7,421	(0.7)	6,973	7,082	(1.5)
Finished leaded motor gasoline/*	426	1,040	(59.0)	431	999	(56.9)
Finished unleaded motor gasoline/*	6,940	6,381	8.8	6,542	6,083	7.5
Naphtha-jet	180	211	(14.7)	182	195	(6.7)
Kerosine-jet	1,289	1,267	1.7	1,311	1,303	0.6
Distillate fuel oil	3,232	3,429	(5.7)	3,191	3,378	(5.5)
Residual fuel oil	1,431	1,535	(6.8)	1,480	1,601	(7.6)
All other oils ⁴	3,914	4,162	(6.0)	3,929	4,241	(7.4)
Reclassified ⁵	-89	-118	(24.6)	-78	-177	(55.9)
Total domestic products supplied	17,323	17,907	(3.3)	16,988	17,623	(3.6)
Exports	889	860	3.4	857	830	3.3
Total products supplied	18,212	18,767	(3.0)	17,845	18,453	(3.3)
Supply:						
Domestic production:						
Crude oil ⁶	7,388	7,510	(1.6)	7,367	7,713	(4.5)
Natural gas liquids	1,539	1,647	(6.6)	1,502	1,635	(8.1)
Other supply ⁷	1,130	1,182	(4.4)	1,150	1,005	14.4
Total domestic supply	10,057	10,339	(2.7)	10,019	10,353	(3.2)
Imports:						
Crude oil, total/ ⁸	6,007	4,917	22.2	5,981	5,184	15.4
Canadian	561	624	(10.1)	576	626	(8.0)
Other	5,446	4,293	26.9	5,405	4,558	18.6
Products, total	1,947	2,400	(18.9)	2,405	2,518	(4.5)
Residual fuel oil	452	703	(35.7)	640	813	(21.3)
Other	1,495	1,697	(11.9)	1,765	1,705	3.5
Total imports	7,954	7,317	8.7	8,386	7,702	8.9
Total supply	18,011	17,656	2.0	18,405	18,055	1.9
Stock change, all oils	-201	-1,111	*****	560	-398	*****
Refinery Operations						
Input to crude oil distillation units	13,014	13,159	(0.6)	13,457	13,234	1.7
Operable capacity	15,614	15,663	(0.3)	15,586	15,682	(0.6)
Refinery utilization (%) ⁹	83.7	84.0	(0.4)	86.3	84.4	2.3
Crude oil runs	12,922	12,963	(0.3)	13,306	13,031	2.1
Stocks (millions bbls.)						
	1990		1989 ²	% Change from		
	Mar. 31 ¹⁰	Feb. 28 ¹⁰		Previous Month	Year Ago	
Crude oil ⁸	365.1	343.4	326.3	6.3	11.9	
Unfinished oils	110.2	108.1	108.5	1.9	1.6	
Total motor gasoline/*	227.5	246.2	230.0	(7.6)	(1.1)	
Finished leaded motor gasoline/*	13.5	14.9	32.4	(9.4)	(58.3)	
Finished unleaded motor gasoline/*	171.8	186.8	156.7	(8.0)	9.6	
Naphtha-jet	6.8	6.4	6.1	6.3	11.5	
Kerosine-jet	40.8	39.8	37.9	2.5	7.7	
Distillate fuel oil	102.1	114.8	96.6	(11.1)	5.7	
Residual fuel oil	43.7	50.0	42.4	(12.6)	3.1	
All other oils	157.5	151.2 ^R	155.4	4.2	1.4	
Total all oils	1,053.7	1,059.9 ^R	1,003.2	(0.6)	5.0	

/1 Based on API estimated data converted to a monthly basis.

/2 Source: U.S. Department of Energy.

/3 Source: January, U.S. DOE, February-March, API.

/4 Includes crude losses.

/5 Beginning with January 1981, U.S. Department of Energy began using a new data collection system which encompasses a method to ascertain the amount of product reclassified during the production phase. So that there will be no double counting of these volumes, they are subtracted from the total domestic products supplied.

/6 API estimate; includes lease condensate.

/7 Includes Unaccounted-for crude oil, Processing gain and Field Production of other hydrocarbons and alcohol.

/8 Data do not include oil imported for the Strategic Petroleum Reserve (SPR) nor crude oil stocks held in the SPR.

/9 Represents "Input to crude oil distillation units" as a percent of "Operable capacity".

/10 Derived by interpolating API weekly stocks data.

/R Revised.

/* Included in motor gasoline.

/** Includes finished leaded, finished unleaded, and motor gasoline blending components stocks.



Monthly Statistical Report

Prepared by the Finance, Accounting, and Statistics Department

Vol. 14, No. 4

MAY 16, 1990

APRIL 1990

SUMMARY

April's 1.0 percent, roughly 160 thousand B/D increase in total deliveries was the first year-to-year rise—excepting the weather-related jump last December—since last June. The increase was attributable in part to unusually strong distillate deliveries and a smaller decline in deliveries of "other oils" than has been the trend over the last several quarters.

Gasoline deliveries also contributed to the year-to-year gain with a 1.1 percent increase, their strongest year-to-year comparison so far this year. This was more a reflection of a price-related shift in consumption and deliveries last spring than an indication of renewed strength for gasoline deliveries this year. Kerosine jet fuel deliveries, after a weak first quarter, jumped 5.9 percent, while residual fuel oil deliveries continued to slide as they have since the middle of last year, falling nearly 13 percent, year to year.

April's increase in total deliveries contrasts with the first quarter's unusually large, partly weather-related decline of about 3 percent, the largest since 1983. April's comparative strength helps confirm that the first quarter's decline had overstated the underlying weakness in deliveries; nevertheless, April's increase probably overstates their strength. Though some positive indications in economic data in the past few weeks suggest that the economy may be on somewhat firmer ground than earlier data had suggested, we still estimate that underlying consumption is declining at about a 1 percent rate.

Crude oil production fell 420 thousand B/D in April, with about 350 thousand B/D of the decline occurring in the lower 48. Though oil drilling has recently shown some year-to-year

gains, the rise in natural gas completions and the relative weakness of oil drilling over the past several years have shifted drilling patterns significantly—in the past few quarters, the level of natural gas drilling has roughly equalled that of oil for the first time. As recently as 1985, oil completions outnumbered gas completions by nearly three to one.

Reflecting differing inventory behavior this April versus last, total imports declined in April—following a first quarter in which they had risen nearly 10 percent to the highest quarterly level since 1979. In April of last year, more than 800 thousand B/D of that month's strong imports had ended up in inventory, while this April, inventories rose only about 200 thousand B/D. April's 1.2 percent decline in imports reflected a drop of about 350 thousand B/D in product imports which more than offset the continued growth in crude oil imports of about 250 thousand B/D.

At refineries, input to distillation units was up 0.6 percent over last April. Gasoline output rose from March's levels in line with typical seasonal patterns and roughly equalled output a year ago.

Total stocks rose 6 million barrels during April and ended the month at the highest April level in six years, mainly because of crude oil stocks. Crude oil inventories rose 7 million barrels to 372 million barrels, the highest month-end level since the early 1980s. Total product stocks were stable during April, and at about 685 million barrels, were within the recent historical range for the month. Gasoline stocks declined 8 million barrels, in line with typical patterns for April.

PRODUCT SUPPLIED¹

Gasoline DELIVERIES RISE MORE THAN 1 PERCENT.

For the first time this year, April's gasoline deliveries rose more than 1 percent, year to year. However, this

somewhat higher growth rate was less the result of any spurt in demand this year than of a decrease in gasoline demand last spring related to higher prices.

In April 1989, gasoline consumption and deliveries were dampened by prices which had risen 15 percent from levels earlier that year, lagging several months behind a substantial increase in crude oil prices. The effect on deliveries apparently diminished over the rest of the year as retail prices, after peaking

in May, declined through the end of the year, despite only a slight decline in refiners' crude oil costs. Retail prices this April were slightly lower than those of a year ago.

Although gasoline deliveries' larger increase in April mainly reflects developments a year ago, further evidence has accumulated that consumption has not been as weak as earlier data on

	API ESTIMATES		YEAR-TO-DATE	
	APRIL			
	Million B/D	Percent Change	Million B/D	Percent (Change)
Total domestic deliveries	16.7	1.0	17.0	(2.0)
Crude production ²	7.3	(5.4)	7.4	(4.8)
Total imports ³	7.9	(1.2)	8.3	7.0
Stocks (million bbl) ⁴	1,058	2.9	na	na

deliveries and the economy seemed to indicate. First, economic growth in the first quarter, according to preliminary estimates, was not as weak as might have been extrapolated from the 1.1 percent annualized rate of the fourth quarter. First quarter growth is currently estimated to have been a moderately higher 2 percent.

Second, recently-released data for travel in February showed an unusually large, 5.1 percent increase, more than 2 percentage points greater than the average 2.8 percent increase for all of 1989. Though better-than-usual driving conditions due to unusually mild weather likely accounted for a significant portion of that increase, these data still give no indication of any major weakening in miles traveled so far in 1990. The underlying trend so far this year in miles travelled is estimated to have been about 2.5 percent.

Third, according to data in the most recent Department of Energy *Petroleum Supply Monthly*, February deliveries were stronger than originally estimated. Incorporating these data in the first quarter average yields a deliveries decline of only 0.4 percent, about a percentage point less than previously estimated. All of these indicators suggest that although the underlying trend in gasoline consumption of the past few months did not make any significant upturn, neither did it apparently weaken further from an estimated decline rate of about half a percent.

Distillates

STRONG GAIN REVERSES EARLIER DROP.

Strongly reversing the first quarter's drop of about 5 percent, distillate deliveries in April jumped 6.5 percent

or about 200 thousand B/D. Most of the first quarter's decline had been the result of unusually mild weather nearly 15 percent warmer than one year earlier. April's strong showing, however, does not seem to be easily explainable in terms of shifts in consumption-related factors.

In fact, continued weakness in deliveries might have been expected for the month because of continued mild weather. Nationally, April was about 6 percent warmer than a year ago, but in major heating oil consuming regions it averaged about 10 percent warmer. Though April, falling near the end of the heating season, normally accumulates heating degree days at less than half the rate of January (on a national, population-weighted basis), the warm weather still would have been expected to reduce the year-to-year comparison by about 80 thousand B/D.

It turns out that part of April's large apparent increase in deliveries results from comparison against figures a year ago estimated to have been perhaps 150 thousand B/D below the weather-adjusted trend. Even so, deliveries this April still were unusually strong, perhaps 100 thousand B/D above trend. For the year to date, if adjusted for weather, deliveries would have risen about 2 percent—closer, but still a bit above, the slight but positive growth estimated for consumption.

Residual Fuel Oil

DECLINE CONTINUES.

Deliveries of residual fuel oil fell by 12.6 percent in April, continuing a trend of decline evident in eight of the past nine months. Moderate weather and continued fuel substitution toward natural gas are believed to be responsible for the persis-

tent decline. With temperatures milder than average for the fourth consecutive month, electricity output grew by an estimated one percent, in contrast to growth of 2.8 percent in 1989.

Price differentials between residual fuel oil and natural gas grew slightly during the month after declining in February and March. Low sulfur residual prices firmed at month's end while spot natural gas prices fell moderately, thus continuing a natural gas price advantage over residual fuel oil for those users with switching capability. In recent years, residual fuel use for electricity generation has fallen in April while natural gas use has risen. Last year, for instance, April saw a 31 percent drop in net generation from petroleum products (of which nearly 95 percent was residual fuel) and a 13 percent increase in net generation from natural gas.

While demand conditions for residual fuel oil use in industrial and electric utility sectors have been weak, there is evidence that use of residual fuel as bunker fuel is on the rise. One reason is the growing role of foreign trade in the U.S. economy. Early in 1990, the dollar values of imports and exports continued to grow at double digit rates; there is preliminary evidence that bunker fuel demand has mirrored that growth, possibly rising by 30 to 40 thousand B/D versus last April.

Of particular interest in the foreign trade picture are growing U.S. exports. Transportation Department data show that ocean-borne U.S. exports have a significantly lower value per ton than ocean-borne U.S. imports. In terms of tonnage, the top U.S. exports have been chiefly grain, coal and lumber products while the top imports have been minerals and manufactured products. In aggregate, for non-tanker ocean-borne trade, the value per ton of imports has been more than four times the value per ton of exports. Consequently, the growth in the dollar value of U.S. exports is likely to have had a bigger impact on tonnage shipped (and thus on bunker fuel demand) than the growth in the value of U.S. imports.

Kerosine Jet Fuel

DELIVERIES STRENGTHEN IN APRIL.

Deliveries of kerosine jet fuel were up 5.9 percent in April, in line with estimated

growth in air travel during the month. For the first four months of the year, however, deliveries were up by only 1.7 percent compared with estimated air traffic growth in the 6-7 percent range.

Above-trend growth in air traffic during recent months has been experienced on both domestic and international routes. This is due in part to the depressed traffic of a year ago. Domestic aircraft miles were low in the spring of 1989 following the Eastern Airlines strike in March. In order to accommodate demand, load factors were relatively high last year, but have since come down by two to three percentage points. Growth in international flights (particularly trans-Atlantic flights) during the same period in 1989 was off following the Pan-Am Lockerbie, Scotland disaster in December 1988. A further contributing factor to growth this year has been air fares, which (as measured by revenues per passenger mile) have come down slightly versus 1989.

Price expectations by purchasers of kerosine jet fuel offer a possible explanation for why deliveries picked up in April. Prices escalated in December and early January due to strong

demand for blending with distillate, but fell steadily in the months after. In the latter half of April, however, prices showed signs of firming; at the same time, deliveries strengthened.

Other Oils

DELIVERIES FALL BY LESS THAN RECENT TREND.

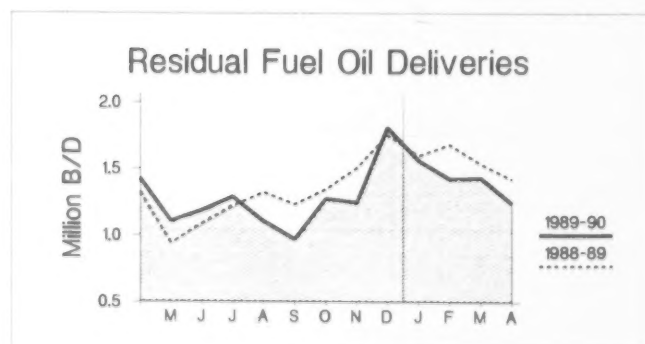
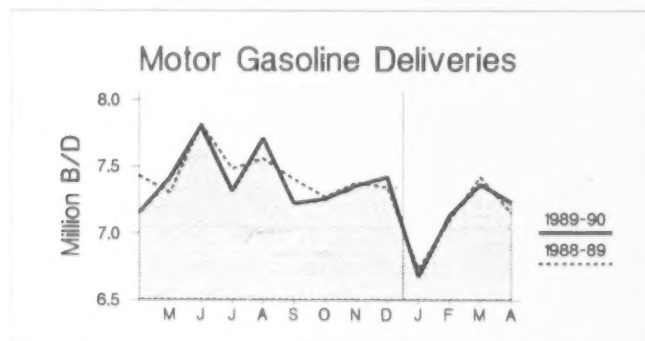
April's deliveries of "other oils" declined only marginally, contrasting with a first quarter drop of about 7 percent.

Though the first quarter's decline was partly weather-related, even on a weather-adjusted basis, the trend for the past three quarters has been about a 4 to 5 percent decline. With April's weather continuing to be warmer than a year ago, which would be expected to have cut into propane usage, only moderate economic growth, and continued lackluster petrochemical feedstock demand, there is little to suggest that underlying consumption trends have changed markedly in the past month or two.

Over a longer perspective, one of the major contributors to "other oils" deliveries has been refinery gas (also known as still

gas). Between 1985 and 1989, increases for refinery gas contributed about two fifths of the roughly 230 thousand B/D increase in deliveries of "other oils". Not a conventional "product" in many ways, its composition is more varied than for most other products and it is not delivered to other users but rather consumed at refineries. However, among the "other oils", it is second only to propane in volume, accounting for nearly 700 thousand B/D in "deliveries" or about one sixth of the "other oils" category.

Many refinery processes produce mixtures of gases, varied in composition, as by-products. Some of these may be extracted and routed for various end uses, including petrochemical feedstocks, gasoline blending, or other purposes—and classified as deliveries of the relevant product. The remainder, however, is put to use at the refinery as fuel and classified as "deliveries" of refinery gas in order to keep petroleum supply and deliveries data in balance. Refinery gas provides a substantial portion of refinery energy input—typically 40 to 50 percent.



SUPPLY ^{1/}

Production

DRILLING SHOWS SHIFT TOWARDS NATURAL GAS.

Alaska and a roughly 350 thousand B/D drop in the lower 48. If Alaskan production a year ago had not been temporarily reduced by traffic restrictions following the tanker accident last March near Valdez, the year-to-year decline for that state would have been an estimated 150 thousand B/D. For the year to date, U.S. crude oil production as a whole would have fallen about 470 thousand B/D, rather than the 370 thousand B/D calculated from the data. This is somewhat less than last year's estimated underlying rate of decline of a little over half a million B/D and reflects a somewhat lesser decline rate for the lower 48 so far this year.

In 1989, lower 48 output had dropped over 400 thousand B/D, while for the first quarter of this year the decline averaged about 340 thousand B/D. That April's decrease was similar to the first quarter's at least suggests that any effect of the recent drop in crude oil prices has as yet not been reflected in domestic crude oil output.

Apparently, higher crude oil prices earlier this year—roughly 20 percent higher than in first quarter 1989—had provided some incentive for drilling new wells and for increased upkeep and servicing of existing production facilities. According to the latest API drilling data, oil completions have been up, year to year, for the past two quarters, the first increases in nearly two years. Oil completions rose 11 percent for the fourth quarter and over 30 percent for the first quarter against an unusually low year-ago level. Gas completions have continued to increase, as they have over the past two years, rising 16 percent for the fourth quarter and over 35 percent for the first quarter.

Gas completions have lately been running at around 3,000 per quarter—for the first time roughly equalling the level of oil completions. Until recently, oil completions in the U.S. had always substantially exceeded gas completions. As recently as 1985, oil completions had out-numbered gas completions by nearly three to one. But with lower oil prices since then and the natural gas market coming more into balance in the last year or two, drilling activity has continued to shift towards natural gas.

Imports

CONTRARY TO TREND, IMPORTS DECLINE.

Crude oil production's 420 thousand B/D decline for April was the combined result of a 70 thousand B/D decrease in

Seemingly at variance with the recent trend, imports dropped slightly in April, year to year.

This, however, followed a nearly 10 percent, above-trend

increase for the first quarter, when imports had reached the highest quarterly level since 1979. April's small decline in imports is explained by differences in inventory changes last year versus this—a year ago, more than 800 thousand B/D in imports ended up in stocks, while this April, inventories rose only 200 thousand B/D.

Even with April's decline, total imports as a share of domestic deliveries still amounted to nearly 49 percent for the year to date, compared with a little less than 45 percent one year earlier.

Crude oil imports maintained their growth, however, rising 253 thousand B/D or 4.5 percent, year to year. Product imports continued to lag behind year-ago levels, falling 348 thousand B/D or about 15 percent. Imports of gasoline and components were down 78 thousand B/D to 359 thousand B/D, distillate, down 58 thousand B/D to 241 thousand B/D, and residual fuel oil, down 137 thousand B/D to 544 thousand B/D.

Refinery Operations

ACTIVITY RISES SEASONALLY FROM MARCH.

Refinery activity began to pick up in April versus March, roughly in line with typical seasonal patterns. Compared

with last April, input to distillation units, at 13.2 million B/D, was up 0.6 percent. Gasoline output also rose seasonally from March levels and roughly equalled that of a year ago. Residual fuel oil output declined slightly, year-to-year, following several months of higher than usual output.

Utilization of capacity in actual operation averaged about 88 percent in April. Utilization of reported capacity was 84.6 percent, up from 83.8 percent last April.

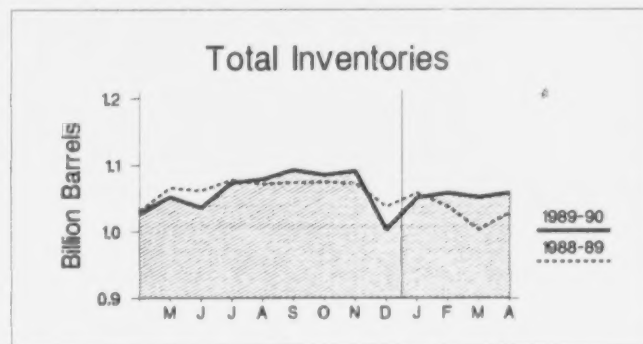
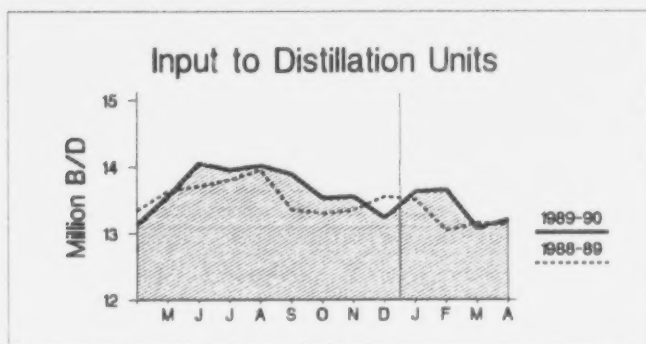
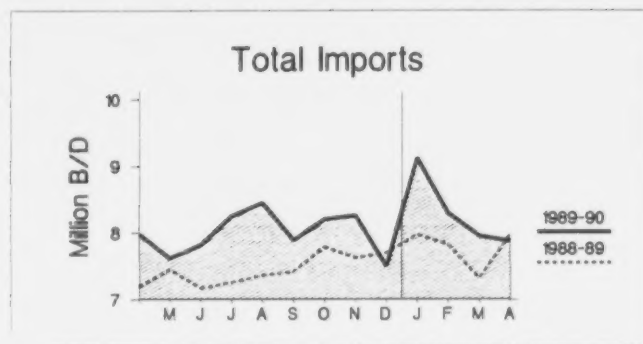
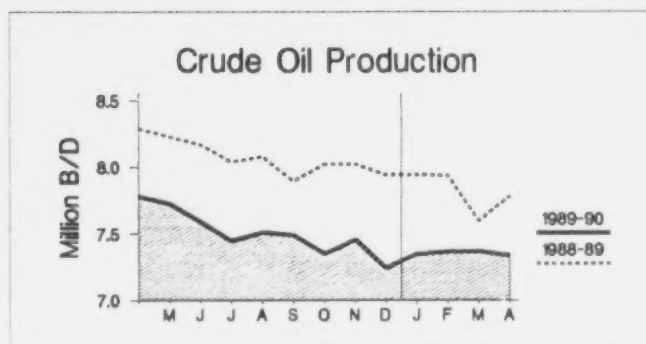
Inventories

CRUDE STOCKS SET RECENT-YEAR HIGH.

Total stocks rose by 6 million barrels for the month, and at 1,058 million barrels, were at

the highest April level in six years. This was mainly the result of high crude oil stocks. Inventories of crude oil, which had already risen 24 million barrels during the first quarter, rose a further 7 million barrels to 372 million barrels, the highest April level since the early 1980s.

Total product stocks remained roughly level during the month. Their month-end level of about 685 million barrels was nearly the same as a year ago and within the 640 to 690 million barrel range of the previous five Aprils. Gasoline stocks fell 8 million barrels for the month, a typical seasonal decline for April. Their level, at 220 million barrels, was within the roughly 210 to 240 million barrel, recent-year range. Distillate stocks fell 6 million barrels to a typical end-of-season level of 96 million barrels.



- 1/ Total supply, i.e., production plus imports adjusted for net stock change is equal to total products supplied from primary storage. Total products supplied from primary storage less exports is equal to total domestic products supplied. Information contained in this report is derived from information published in the API Weekly Bulletin and is based on historical analysis of the industry. All data reflect the most current information available to the API and include all previously published revisions.
- 2/ Includes lease condensate.
- 3/ API data do not include crude oil imported for the Strategic Petroleum Reserve (SPR) nor crude oil stocks held in the SPR (according to the U.S. Department of Energy, the SPR held approximately 583 million barrels as of April 30, 1990).

ESTIMATED UNITED STATES PETROLEUM BALANCE
(Daily Average in Thousands of 42 Gallon barrels)

Products Supplied/Supply From Primary Storage	APRIL			YEAR-TO-DATE		
	1990 ¹	1989 ²	% Change	1990 ^{3R}	1989 ²	% Change
Products Supplied:						
Total motor gasoline	7,230	7,150	1.1	7,098	7,099	0.0
Finished leaded motor gasoline/*	434	912	(52.4)	433	977	(55.7)
Finished unleaded motor gasoline/*	6,796	6,238	8.9	6,665	6,122	8.9
Naphtha-jet	197	200	(1.5)	190	196	(3.1)
Kerosine-jet	1,244	1,175	5.9	1,293	1,271	1.7
Distillate fuel oil.....	3,166	2,973	6.5	3,205	3,276	(2.2)
Residual fuel oil	1,242	1,421	(12.6)	1,416	1,556	(9.0)
All other oils ⁴	3,791	3,794	(0.1)	3,912	4,130	(5.3)
Reclassified ⁵	-150	-152	(1.3)	-103	-170	(39.4)
Total domestic products supplied.....	16,720	16,561	1.0	17,011	17,358	(2.0)
Exports	763	810	(5.8)	796	825	(3.5)
Total products supplied.....	17,483	17,371	0.6	17,807	18,183	(2.1)
Supply:						
Domestic production:						
Crude oil ⁶	7,335	7,755	(5.4)	7,354	7,723	(4.8)
Natural gas liquids.....	1,575	1,670	(5.7)	1,549	1,644	(5.8)
Other supply ⁷	904	795	13.7	1,044	953	9.5
Total domestic supply.....	9,814	10,220	(4.0)	9,947	10,320	(3.6)
Imports:						
Crude oil, total ⁸	5,938	5,685	4.5	5,997	5,309	13.0
Canadian	546	594	(8.1)	572	618	(7.4)
Other.....	5,392	5,091	5.9	5,425	4,691	15.6
Products, total	1,941	2,289	(15.2)	2,319	2,460	(5.7)
Residual fuel oil	544	681	(20.1)	611	780	(21.7)
Other.....	1,397	1,608	(13.1)	1,708	1,680	1.7
Total imports	7,879	7,974	(1.2)	8,316	7,769	7.0
Total supply.....	17,693	18,194	(2.8)	18,263	18,089	1.0
Stock change, all oils	210	823	*****	456	-94	*****
Refinery Operations						
Input to crude oil distillation units	13,203	13,130	0.6	13,384	13,208	1.3
Operable capacity	15,614	15,665	(0.3)	15,576	15,677	(0.6)
Refinery utilization (%) ⁹	84.6	83.8	1.0	85.9	84.3	1.9
Crude oil runs	13,050	12,953	0.7	13,236	13,011	1.7
	1990		1989 ²	% Change from		
Stocks (millions bbls.)	Apr. 30 ¹⁰	Mar. 31 ¹⁰		Apr. 30	Previous Month	Year Ago
Crude oil ⁶	372.1	365.1	339.4	1.9	9.6	
Unfinished oils	107.4	110.2	111.7	(2.5)	(3.8)	
Total motor gasoline/**	220.0	227.5	227.5	(3.3)	(3.3)	
Finished leaded motor gasoline/*	12.6	13.5	29.4	(6.7)	(57.1)	
Finished unleaded motor gasoline/*	168.5	171.8	159.4	(1.9)	5.7	
Naphtha-jet.....	6.4	6.8	6.1	(5.9)	4.9	
Kerosine-jet	41.6	40.8	38.1	2.0	9.2	
Distillate fuel oil	96.5	102.1	98.4	(5.5)	(1.9)	
Residual fuel oil	43.6	43.7	40.2	(0.2)	8.5	
All other oils.....	170.5	155.6	166.5	9.6	2.4	
Total all oils	1,058.1	1,051.8	1,027.9	0.6	2.9	

/1 Based on API estimated data converted to a monthly basis.

/2 Source: U.S. Department of Energy.

/3 January-February, DOE, March-April, API.

/4 Includes crude losses.

/5 Beginning with January 1981, U.S. Department of Energy began using a new data collection system which encompasses a method to ascertain the amount of product reclassified during the production phase. So that there will be no double counting of these volumes, they are subtracted from the total domestic products supplied.

/6 API estimate; includes lease condensate.

/7 Includes Unaccounted-for crude oil, Processing gain and Field Production of other hydrocarbons and alcohol.

/8 Data do not include oil imported for the Strategic Petroleum Reserve (SPR) nor crude oil stocks held in the SPR.

/9 Represents "Input to crude oil distillation units" as a percent of "Operable capacity".

/10 Derived by interpolating API weekly stocks data.

/R Revised.

/* Included in motor gasoline.

/** Includes finished leaded, finished unleaded, and motor gasoline blending components stocks.



Monthly Statistical Report

N2575-2

Prepared by the Finance, Accounting, and Statistics Department

Vol. 14, No. 5

JUNE 13, 1990

MAY 1990

SUMMARY

April's reversal of the declining trend in total deliveries turned out to be short-lived. In May, deliveries reverted to the pattern of decline evident since the middle of last year, falling 1.3 percent for the month.

Gasoline and distillate deliveries in May both reversed their respective rises for April. Gasoline deliveries were weaker than might have been expected from consumption trends, falling 1.3 percent, while distillate deliveries' 6.7 percent decline followed an unusually strong increase for the prior month. Residual fuel oil deliveries continued to slip, falling 3.3 percent, while deliveries of "other oils" fell about 1.6 percent. The only major product to show an increase was kerosene jet fuel, which jumped over 14 percent from unusually low deliveries a year ago.

Domestic crude oil output dropped 6.1 percent or nearly 475 thousand B/D in May. In recent months, year-to-year declines in the lower 48 have been running at around 300 thousand B/D, less than last year's average 400 thousand B/D decline. The most recent figures add to the evidence that recent increases in well maintenance and new drilling have had some effect on output. Meanwhile, Alaskan production fell 184 thousand B/D or more than 9 percent, somewhat greater than the recent trend of around 6 or 7 percent.

Following April's small year-to-year decline, total imports jumped to 8.5 million B/D and exceeded 50 percent of deliveries on a monthly basis for the third time in the past year. Product imports rose more than 10 percent, only the second year-to-year increase since last summer. Imports of gasoline and components, in particular, after running from 340 to 360 thousand B/D in March and April, rose to more than 600 thousand B/D in May.

Meanwhile, delayed turnarounds and unexpected maintenance kept refinery activity subdued for much of May. For the month as a whole, input to distillation units averaged a decline of a little less than 1 percent and gasoline production dropped about 3 percent versus last May.

Total inventories, already high at the end of April, rose another 40 million barrels in May to over 1.1 billion barrels. With high crude oil imports and lower refinery runs, crude oil stocks rose 12 million barrels during the month. At 384 million barrels, they were about 40 million barrels above the May average of the previous five years. Gasoline inventories, ending the month at 217 million barrels, were near the low end of the recent-year range for May but were building gradually towards the end of the month.

PRODUCT SUPPLIED¹¹

Gasoline

WEAK DELIVERIES DURING MAY.

Gasoline deliveries, which had been about even with a year ago for the first four months of this year, fell 1.3 percent in May. The month's deliveries appear even weaker when considering that the comparison is made against deliveries a year ago which had been dampened by last spring's higher prices. Retail prices a year ago May were about 5 percent higher than for May 1990, or, on an inflation-adjusted basis, about 10 percent higher than for the same month this year.

There is little reason to believe, however, that underlying consumption weakened in May. The economy appears to be continuing at at least a moderate pace, and data on travel, though lagging deliveries data by two months, also do not suggest any further slackening in gasoline demand. It is true that February's unusually large, more than 5 percent increase in miles traveled could have been at least partly attributed to unusually mild weather and better-than-average driving conditions for that time of year. But March's increase was still a solid 3 percent, roughly in line with the previous trend.

Distillates

MAY DROPS AFTER APRIL'S JUMP.

Including May's 6.7 percent, year-to-year decrease, distillate deliveries have fallen for four out of five months so far this year. Nevertheless, the underlying trend of distillate consumption over this period is estimated to have been one of slight growth. This is not as contradictory as it might first appear. The first quarter's decline of close to 5 percent, if adjusted for unusually mild weather, would have amounted to a slight increase. May's deliveries drop, though not much related to weather, followed an unusually large increase in April.

	API ESTIMATES		YEAR-TO-DATE	
	MAY			
	Million B/D	Percent Change	Million B/D	Percent Change
Total domestic deliveries	16.3	(1.3)	16.8	(2.2)
Crude production ²¹	7.3	(1.6)	7.3	(5.0)
Total imports ²²	8.5	11.7	8.3	7.8
Stocks (million bbl) ²³	1,108	5.3	na	na

Just as at least part of April's increase was the result of comparison against weak deliveries a year ago, part of May's calculated decline resulted from strong deliveries in the year-ago period—though this May's deliveries still appeared weak. For the year to date, distillate deliveries have declined about 2.8 percent—but if adjusted for weather, they would have risen about 0.5 percent, roughly in line with the estimated trend of slight growth.

Residual Fuel Oil **FUEL SHIFTS** **ALTER DEMAND.**

Deliveries of residual fuel oil fell in May for the fifth consecutive month. However, the 3.3 percent decrease was small when compared to the double digit decline during the first third of the year. While the smaller rate of decline accompanied only slight growth in electricity output, residual fuel use is believed to have been aided by drought-induced declines in hydroelectric generation on the West Coast and increasing price competitiveness of residual fuel vis-a-vis natural gas.

Electricity output is estimated to have grown by less than one percent in May, comparable to the low levels of growth seen during the first four months of 1990. Output in the Middle Atlantic and New England states (where electric utilities rely more heavily on residual-fired generation) actually declined during the month.

While overall flatness in electricity output worked against residual fuel demand, other factors are believed to have worked in its favor. Residual fuel oil prices became more competitive with natural gas prices during the month and may have tempered the ongoing utility substitution from residual fuel to natural gas. Furthermore, utilities in California reported a sizeable drop in hydro-powered generation during the month, resulting from the impact of the drought on reservoir levels. Residual-fired generation is believed to have serviced part of this void. Bunker fuel markets are believed to have been aided by favorable U.S. prices and continuing strength in the foreign trade picture. Since the beginning of the year, bunker prices on the West Coast have become more competitive with prices in the Far East.

Overall demand sluggishness for residual fuel since late last summer has been attributed in part to the substitution by electric power companies of natural gas for residual fuel. Indeed, residual fuel use by electric utilities over that period has fallen both in absolute terms and in terms relative to natural gas. It appears that an equally important factor may be the relative shift over the past year away from all fossil fuels toward nuclear generation, resulting from both a reduction in down-time and an expansion in nuclear capacity. Nearly half of newly added generation capacity in 1989 was nuclear.

During the winter months, electricity generation from all three fossil fuel groups (coal, petroleum, and natural gas) fell while nuclear and hydro-powered generation each grew by more than 20 percent. In January, for example, nuclear net generation in the three state mid-Atlantic region was up over 41 percent (more than 3 billion kilowatt-hours) while petroleum fired net generation was down more than 20 percent (more than 1.3 billion kilowatt-hours). The drop in petroleum-fired generation in these three states alone accounted for over 35 percent of the drop nationwide.

Kerosine Jet Fuel **DELIVERIES' GROWTH** **SURPASSES THAT** **OF TRAVEL.**

Kerosine jet fuel deliveries jumped by 14.4 percent in May, outpacing estimated growth in airline travel for the first time this year. However, perhaps half the apparent surge in deliveries this May is attributable to relatively low deliveries last May.

May marked the thirteenth consecutive month of increasing airline travel, following a dip a year ago March in miles flown following the Eastern strike. Growth in passenger traffic continues to be greatest on international routes, which has been running at an estimated 13 percent in recent months. However, growth in domestic travel has recently been running at about 10 percent, compared with about 3 percent earlier this year. Much of the current large growth, however, reflects the slackening in miles flown (and higher load factors) last spring. Overall, the underlying growth rate in airline mileage is believed to be about 4 percent—lower than the rate seen during the first five months of 1990.

Because of fuel inventory management by airlines, monthly growth rates in deliveries of kerosine jet fuel and airline travel do not always track each other well in the short run; however, they tend to grow at similar rates over time. Thus far in 1990, deliveries have grown 3.5 percent while estimated seat miles have grown by about 8 percent. The 4.5 percent divergence in the two growth rates for the first five months is relatively large, but appears to be narrowing.

Other Oils **DELIVERIES SLIP** **ABOUT 2 PERCENT.**

Deliveries of "other oils" fell 1.6 percent in May, continuing for a second month a lesser rate of decline than previously had been apparent.

Recently-released data confirm that at least part of the first quarter's 250 thousand B/D, 6.0 percent decline was related to the warm weather's effect on propane deliveries, which fell about 160 thousand B/D or nearly 14 percent for the quarter. Ethane deliveries also contributed nearly 100 thousand B/D to the decline, losing market share to liquid feedstocks, which nevertheless rose only slightly because of weak feedstock demand overall. The warm weather apparently provided a better-than-usual opportunity for road work, however, with asphalt deliveries rising about 50 thousand B/D or by more than 25 percent for a period which is typically a seasonal low point. Adjusting for weather, the quarter's decline for "other oils" would have been 4 or 5 percent.

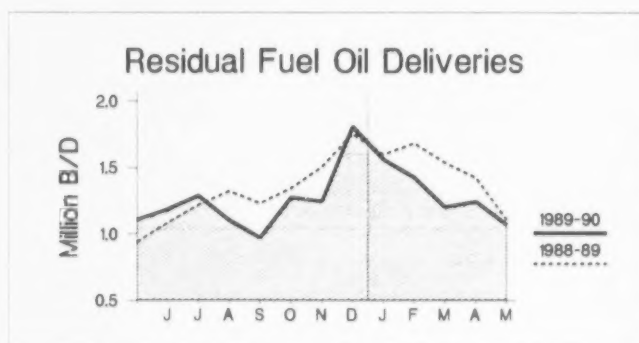
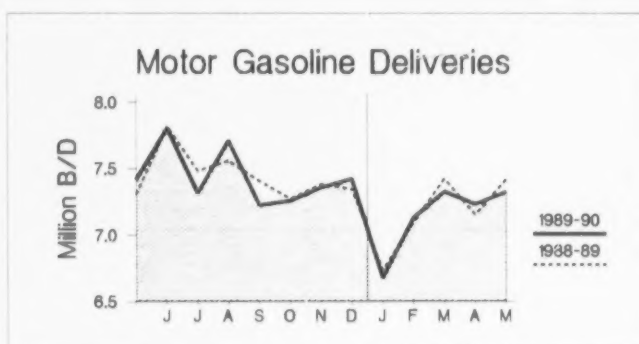
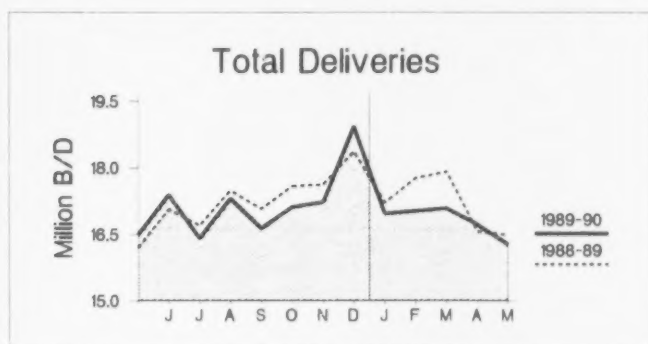
A small, but not insignificant portion of the "other oils" category consists of lubricating oils. About 1 percent of all finished petroleum products supplied, the so-called lube oils (comprising automotive oils, greases, and industrial oils) make up about 5 percent of the "other oils" class. The Department of Energy has reported that deliveries of products in this category increased by 2.6 percent in 1989, slightly above the trend growth of about 2 percent during the previous three years.

The National Petroleum Refiners Association reports that within the lube oil category, sales growth in automotive and industrial process oils over the past three years has outpaced growth in the sale of greases and other industrial lubricants. In 1989, growth was driven primarily by automobile oils (including

engine oils, transmission and hydraulic fluids, and gear oils which together comprise over half of lube oil sales volumes).

Interestingly, in the 1980's, growth in the sale of automobile engine oils (about 80 percent of all automobile oil sales) lagged considerably behind growth in both the vehicle fleet and the number of miles travelled by the vehicle fleet. The divergence between the growth rates is attributable, in part, to two factors.

First, change in engine design has reduced oil losses, and the engine size of a representative motor vehicle has gotten smaller over the past decade. Smaller engines (with smaller crankcases) require less oil with each oil change. Second, the quality of engine oil has improved significantly. Not only do better grade oils require changing less frequently, they require less topping off in between changes.



SUPPLY^{1/}

Production

LOWER 48's DECLINE LESS THAN IN 1989.

Domestic crude oil production fell 6.1 percent or nearly 475 thousand B/D in May. Lower 48 output declined 290 thousand B/D, or 5.0 percent, continuing to show lesser year-to-year declines than evident during 1989. The most recent estimates show that, in recent months, declines in lower 48 output have been running at roughly 300 thousand B/D, less than last year's annual average drop of 400 thousand B/D or 6.7 percent. This may be evidence that recent increases in well servicing and oil drilling activity have had some impact on production levels.

Alaskan crude oil output fell 184 thousand B/D or 9.3 percent, somewhat more than the recent trend of around 6 or 7 percent. Major maintenance projects are scheduled to temporarily reduce North Slope output further this summer.

The work includes additions to capacity for separating gas and water from the crude, as well as overall maintenance. Five of the field's flow stations are scheduled to be taken down, one at a time, for roughly two weeks each. With each station normally handling about 200 to 300 thousand B/D, the maintenance as announced would cause a dip in the field's output of roughly 20

to 25 million barrels over the next several months. Down time for general maintenance in the Endicott field, which normally produces about 100 thousand B/D, is also planned later in the summer, which would add perhaps another million barrels to the dip.

Imports

AGAIN, IMPORTS PASS 50 PERCENT OF DELIVERIES.

As might have been expected due to the continued decline in domestic production, April's small, year-to-year decline in imports turned out to be a temporary aberration. In May, total imports jumped to 8.5 million B/D, up nearly 12 percent over a year ago. Partly because of seasonally lower demand at this time of year, the month's unusually strong imports amounted to more than 52 percent of domestic deliveries. This is the third time that the 50 percent mark has been exceeded on a monthly basis in the past year. The only other period during which total imports' share passed the half-way point was for a few months in 1977.

Product imports' 10.4 percent increase in May was only the second since last summer. (The first had been this past January, when inventories were being rebuilt after December's strong, weather-related demand.) Though part of the increase results from comparison against lower imports last May, product

imports this May were also stronger compared with those of recent previous months, particularly for gasoline.

Earlier in the year, some had expressed concerns that the availability of gasoline imports might be less this year than in the past. But in May, with domestic refinery output hampered, imports of gasoline and components set a monthly record. After running 340 to 360 thousand B/D in March and April, they rose to 602 thousand B/D in May, up nearly 200 thousand B/D over a year ago. Finished gasoline imports amounted to about 540 thousand B/D. Kerosine jet fuel imports also rose 27 thousand B/D to 137 thousand B/D. Distillate fuel oil imports, however, were unusually weak, and at 200 thousand B/D, were down by nearly a third from last May. Residual fuel oil imports dropped 50 thousand B/D to 476 thousand B/D.

Refinery Operations

**INPUT OFF SLIGHTLY,
GASOLINE DOWN
3 PERCENT.**

Input to distillation units slipped 0.7 percent in May from one year earlier. Weaker demand has played a role in the

decline; for the year to date, total deliveries have dropped about 2 percent—though refinery input still averaged about 1 percent higher. Unscheduled maintenance and delayed turnarounds have also had an impact on recent levels of refinery activity. Refinery runs were beginning to pick up towards the end of the month, and by month-end were running at levels comparable to last May. However, gasoline output still averaged about 3 percent

less than for the same month a year ago; residual fuel oil output fell about 2 percent, while distillate production rose 4.5 percent.

Utilization of the capacity in actual operation was still estimated at a reasonably strong 90 percent for the month; on the basis of reported capacity, utilization averaged 86.3 percent, down slightly from that of last May.

Inventories

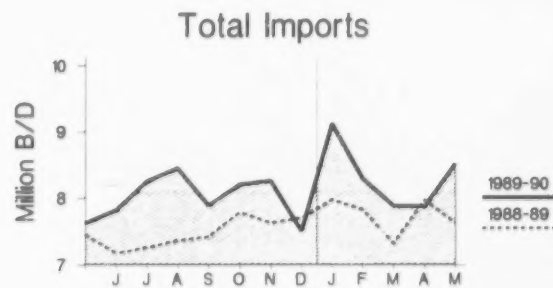
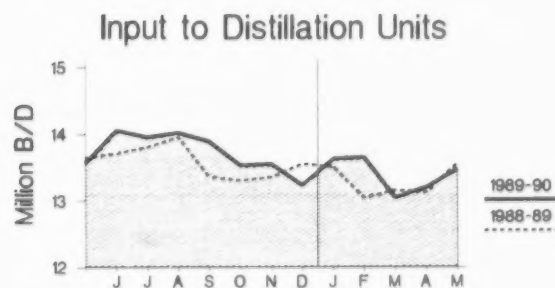
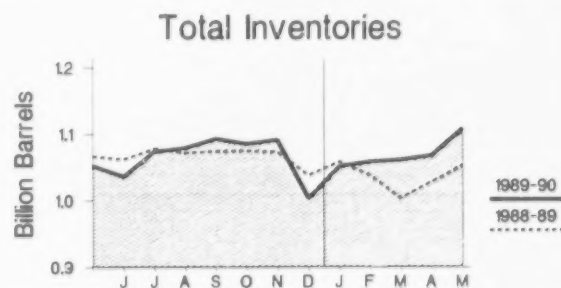
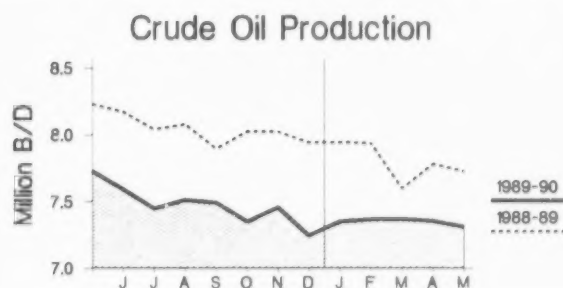
**UP ANOTHER
40 MILLION
BARRELS.**

Total inventories, already high by recent historical standards at the end of April, rose again in May by about twice the typical

amount. The 40 million barrel increase put total stocks at over 1.1 billion barrels, mainly because of continued high crude oil stocks. With strong imports of crude oil continuing in May and the effects of maintenance and turnarounds at refineries, crude oil inventories rose 12 million barrels to nearly 384 million barrels. This was roughly 40 million barrels above the average for the previous five Mays.

Gasoline inventories declined 4 million barrels during May to 217 million barrels. Though close to the lower end of the 215 to 235 million barrel range of recent prior Mays, this was still about 12 million barrels above the estimated minimum operating level. In recent years, gasoline inventories have supplied at most about 1 percent of deliveries during the summer driving months.

Distillate stocks rose 8 million barrels to 104 million barrels, within the recent historical range for May.



- 1/ Total supply, i.e., production plus imports adjusted for net stock change is equal to total products supplied from primary storage. Total products supplied from primary storage less exports is equal to total domestic products supplied. Information contained in this report is derived from information published in the API Weekly Bulletin and is based on historical analysis of the industry. All data reflect the most current information available to the API and include all previously published revisions.
- 2/ Includes lease condensate.
- 3/ API data do not include crude oil imported for the Strategic Petroleum Reserve (SPR) nor crude oil stocks held in the SPR (according to the U.S. Department of Energy, the SPR held approximately 586 million barrels as of May 31, 1990).

ESTIMATED UNITED STATES PETROLEUM BALANCE
(Daily Average in Thousands of 42 Gallon barrels)

Products Supplied/Supply From Primary Storage	MAY			YEAR-TO-DATE		
	1990 ¹	1989 ²	% Change	1990 ^{3M}	1989 ²	% Change
Products Supplied:						
Total motor gasoline	7,321	7,416	(1.3)	7,136	7,164	(0.4)
Finished leaded motor gasoline/*	439	930	(52.8)	438	968	(54.8)
Finished unleaded motor gasoline/*	6,882	6,486	6.1	6,698	6,196	8.1
Naphtha-jet	175	224	(21.9)	184	202	(8.9)
Kerosine-jet	1,262	1,103	14.4	1,280	1,237	3.5
Distillate fuel oil	2,759	2,957	(6.7)	3,121	3,211	(2.8)
Residual fuel oil	1,069	1,105	(3.3)	1,298	1,464	(11.3)
All other oils ⁴	3,836	3,898	(1.6)	3,916	4,082	(4.1)
Reclassified ⁵	-151	-215	(29.8)	-125	-180	(30.6)
Total domestic products supplied	16,271	16,488	(1.3)	16,810	17,180	(2.2)
Exports	853	792	7.7	806	818	(1.5)
Total products supplied	17,124	17,280	(0.9)	17,616	17,998	(2.1)
Supply:						
Domestic production:						
Crude oil ⁶	7,309	7,782	(6.1)	7,348	7,735	(5.0)
Natural gas liquids	1,528	1,623	(5.9)	1,540	1,639	(6.0)
Other supply ⁷	1,074	1,033	4.0	1,078	969	11.2
Total domestic supply	9,911	10,438	(5.0)	9,966	10,343	(3.6)
Imports:						
Crude oil, total ⁸	6,268	5,588	12.2	6,068	5,367	13.1
Canadian	672	635	5.8	596	622	(4.2)
Other	5,596	4,953	13.0	5,472	4,745	15.3
Products, total	2,243	2,032	10.4	2,273	2,372	(4.2)
Residual fuel oil	476	526	(9.5)	559	728	(23.2)
Other	1,767	1,506	17.3	1,714	1,644	4.3
Total imports	8,511	7,620	11.7	8,341	7,739	7.8
Total supply	18,422	18,058	2.0	18,307	18,082	1.2
Stock change, all oils	1,298	778	*****	691	84	*****
Refinery Operations:						
Input to crude oil distillation units	13,469	13,561	(0.7)	13,396	13,280	0.9
Operable capacity	15,614	15,679	(0.4)	15,560	15,678	(0.8)
Refinery utilization (%) ⁹	86.3	86.5	(0.2)	86.1	84.7	1.7
Crude oil runs	13,343	13,395	(0.4)	13,249	13,090	1.2
	1990			1989 ²	% Change from	
Stocks (millions bbls.)						
	May 30 ¹⁰	Apr. 30 ¹⁰	May 31	Previous Month	Year Ago	
Crude oil ⁶	384.4	372.1	345.3	3.3	11.3	
Unfinished oils	115.2	107.4	114.6	7.3	0.5	
Total motor gasoline/**	216.5	220.0	223.6	(1.6)	(3.2)	
Finished leaded motor gasoline/*	11.7	12.6	26.8	(7.1)	(56.3)	
Finished unleaded motor gasoline/*	165.7	168.5	157.1	(1.7)	5.5	
Naphtha-jet	6.6	6.4	6.1	3.1	8.2	
Kerosine-jet	42.2	41.6	39.2	1.4	7.7	
Distillate fuel oil	104.0	96.5	99.3	7.8	4.7	
Residual fuel oil	45.9	43.6	42.6	5.3	7.7	
All other oils	192.9	179.9 ^R	181.3	7.2	6.4	
Total all oils	1,107.7	1,067.5 ^R	1,052.0	3.8	5.3	

/1 Based on API estimated data converted to a monthly basis.

/2 Source: U.S. Department of Energy.

/3 January-March, DOE, April-May, API.

/4 Includes crude losses.

/5 Beginning with January 1981, U.S. Department of Energy began using a new data collection system which encompasses a method to ascertain the amount of product reclassified during the production phase. So that there will be no double counting of these volumes, they are subtracted from the total domestic products supplied.

/6 API estimate; includes lease condensate.

/7 Includes Unaccounted-for crude oil, Processing gain and Field Production of other hydrocarbons and alcohol.

/8 Data do not include oil imported for the Strategic Petroleum Reserve (SPR) nor crude oil stocks held in the SPR.

/9 Represents "Input to crude oil distillation units" as a percent of "Operable capacity".

/10 Derived by interpolating API weekly stocks data.

/R Revised.

/* Included in motor gasoline.

/** Includes finished leaded, finished unleaded, and motor gasoline blending components stocks.



Monthly Statistical Report

A2575-2

Prepared by the Finance, Accounting, and Statistics Department

Vol. 14, No. 6

JULY 18, 1990

JUNE 1990

SUMMARY

Total imports as a percentage of domestic deliveries reached a new first-half high of nearly 50 percent in the first six months of 1990. Despite a partly weather-related decline in deliveries, the continued drop in domestic crude oil production, combined with a strong build-up in crude oil inventories, put the percentage at 49.9 percent. This surpassed the previous high for a half year of 48.8 percent, set in the first six months of 1977. June's imports amounted to 52.3 percent of deliveries.

Since the first half of 1985, imports have risen nearly 80 percent or 3.7 million B/D. Even adjusting for differences in inventory patterns between those two years—this year's first half imports of 8.4 million B/D, in particular, were an estimated 0.7 million B/D above what would have been needed to satisfy current deliveries and fulfill typical inventory patterns—imports in the first six months of 1990 would still have been more than half again as large as five years earlier.

Between 1985 and 1988, growing consumption's contribution to the rise in imports was roughly twice that of the decline in domestic crude oil output. But with deliveries flat in 1989 and declining so far in 1990, and with the reversal of Alaskan output's previous upward trend having led to an acceleration in the decline in domestic crude oil output, the roles of these two factors have changed. Falling domestic crude oil production has become the main force at work in expanding the gap between domestic supply and demand.

Domestic production fell nearly 6 percent for the first half versus a year ago to 7.3 million B/D, down nearly 20 percent

or 1.7 million B/D from first half 1985—and the lowest level in 29 years. Lower 48 production fell 6.3 percent, or 370 thousand B/D to 5.5 million B/D, the lowest level in nearly 40 years. Alaska's production, which accounts for about one fourth of domestic crude oil output, fell about 90 thousand B/D for the first half.

Deliveries for the first half declined 2.5 percent. Unusually warm weather early in the year was partly responsible, without which the decline would have been an estimated 1.5 percent. Except for a 3.3 percent increase for kerosine jet fuel, all other major products declined. Gasoline deliveries fell 1.1 percent, while distillate deliveries fell 3.3 percent, and residual fuel oil, 10.5 percent. For June, total deliveries fell 1.6 percent, with deliveries of all major products except residual fuel oil sharing in the drop.

Refinery activity, which had been down slightly versus a year ago in recent months, began to pick up in June. Input to distillation units rose from 13.5 million B/D in May to 13.9 million B/D in June, though input was still down 1.4 percent versus a year ago. Gasoline output, after averaging about 6.7 million B/D in recent prior months, rose steadily during June, ending the month at levels over 7.3 million B/D and approaching last summer's peak levels.

Total inventories rose another 10 million barrels during June. Crude oil stocks, however, which had risen 43 million barrels between the beginning of the year and the end of May, held nearly steady at 383 million barrels.

PRODUCT SUPPLIED¹

Gasoline

DELIVERIES

WEAKER THAN

TRAVEL SUGGESTS.

Gasoline deliveries, already down slightly versus last year for the first five months, fell an unusually large 3.1 percent for

June. This brought the decline for the first half to 1.1 percent. Gasoline deliveries have shown little strength for much of the first half, but the greater weakness of the past month or two is seemingly at variance with trends suggested by other indicators of consumption.

The slower growth of the economy might suggest smaller increases in travel, but traffic data as of yet have not borne this out. For last year as a whole, miles traveled had risen 2.8 percent, and (because of fuel efficiency gains related to vehicle fleet turnover) gasoline deliveries were flat. The latest data on travel for this year show a still-healthy 3.2 percent increase for April

and a 3.4 percent rise for the year to date. Even if it should turn out that the rate of increase slowed for more recent months, the first half's increase in miles traveled would still work out to close to last year's average increase. Thus, it would seem that, unless the traffic data have been overstating travel growth, gasoline consumption has not been quite as weak as deliveries data suggest.

	API ESTIMATES		YEAR-TO-DATE	
	JUNE			
	Million B/D	Percent Change	Million B/D	Percent Change
Total domestic deliveries	17.2	(1.6)	16.9	(2.5)
Crude production ²	7.1	(7.3)	7.3	(5.9)
Total imports ³	9.0	13.6	8.4	7.2
Stocks (million bbl) ⁴	1,105	6.7	na	na

It is possible that part of the unusual weakness in deliveries over the past month or two is related to the effects on travel of unusually heavy rains and extended flooding, particularly in the eastern half of the country. May was one of the wettest months of the past hundred years for the northeast and central U.S., and in June, some parts of the Midwest experienced as much as 5 to 7 inches of rain more than normal.

Distillates **WARM WEATHER CONTRIBUTES TO FIRST HALF DROP.**

Distillate deliveries fell 3.3 percent for the first half. While the first quarter's 4.6 percent drop was largely the result of some of the warmest first-quarter weather in decades, the second quarter's 1.7 percent decline seems less readily explainable in terms of consumption-related factors. Transportation usage, which has been the main contributor to growth in distillate consumption over the past several years, still appears to be up slightly so far this year. Continued, though moderate, growth in the economy suggests at least some increase for on-highway diesel. Rail traffic for the year to date has also been up an estimated 3.5 percent. Furthermore, June's 1.3 percent decline in deliveries was against deliveries a year ago roughly 100 thousand B/D above trend; if compared against a figure more in line with last year's trend, deliveries in June would have risen about 2 percent.

Distillate deliveries fluctuate more than it would seem that underlying consumption would from month to month, obscuring underlying trends at times. Thus, though it is possible that consumption has weakened more than is apparent from other indicators, it appears more likely that the second quarter's decline exaggerates the weakness of distillate consumption. If this is the case, and adjusting for the warmer weather earlier in the year, the trend of distillate consumption has probably been one of marginal growth.

Residual Fuel Oil **DOWN FOR THE HALF, BUT UP IN JUNE.**

Residual fuel oil deliveries rose by more than 8 percent in June after falling during each of the first five months of the year. The June reversal of a downward trend which has persisted since last August accompanied hotter weather, lower residual fuel prices and more limited hydroelectric generating capability than the same month a year ago. Despite the June growth, product supplied was down 5.6 percent during the quarter and 10.5 percent during the first half of the year, due primarily to factors in the electric utility industry.

Throughout much of the country, weather conditions were hotter than normal in June. The heat wave across the South and Midwest and an accompanying decline in hydroelectric generation are believed to have added to residual fuel demand for the month. Cooling degree days were up more than 15 percent nationwide versus last June. Despite the hotter-than-normal month, the weather was otherwise generally moderate during the first half of the year, contributing to an overall softening in electricity demand growth.

The effects of more sluggish electricity demand growth so far in 1990 have not been distributed uniformly among fuel groups. Thanks to added and restored generating capacity over the past year, the nuclear segment gained market share at the expense of

all three fossil fuel groups. Of fossil-fired generation, residual fuel experienced losses relative to natural gas, due both to larger price differentials between the two fuels early in the year and better-than-usual gas availability accompanying mild first quarter weather. These two factors are believed to have encouraged fuel switching by utilities and industrial users with such capability.

Domestic bunker demand is believed to have been slowed by relatively high U.S. prices early in the year compared with foreign ports, but buoyed by growing ocean-borne foreign trade. Increasing U.S. price competitiveness and (somewhat ironically) increasing U.S. imports of petroleum are believed to have aided bunker fuel demand. More so in terms of tonnage than in terms of dollar value, crude oil and petroleum products represent a very large share of all ocean-borne imports. As a point of reference, the Maritime Administration reported that these imports represented nearly 65 percent of all ocean-borne import tonnage in 1987. With petroleum imports rising by more than 30 percent between June 1987 and June 1990, however, that share is no doubt larger.

Unfortunately, tracking bunker fuel demand has become more difficult since the Commerce Department ceased publishing its report on bunker fuel volumes and expenditures (report FT810). Without this report, there is little in the way of current information available on bunker fuel volumes.

Kerosine Jet Fuel **DELIVERIES GROWTH FALLS SHORT OF TRAFFIC INCREASE.**

Deliveries of kerosine jet fuel were essentially flat in June, but ended the second quarter up 8.5 percent and the first six months of the year up a moderate 3.3 percent. For the fifth time in the past six months, growth in kerosine jet fuel deliveries fell short of growth in miles flown, which was estimated at 6 percent in June and about 7-8 percent over the first two quarters.

Month-to-month divergence between the growth rates of aircraft miles and kerosine jet fuel deliveries is often likely the result of changes in non-primary jet fuel inventories. Ordinarily, however, the two growth rates would be expected to move more in tandem than they have so far in 1990. A small portion of the persistent gap may be attributable to compositional shifts in flight destinations. As was the case throughout much of the 1980s, growth in international travel has surpassed that of domestic travel so far in 1990, with trans-Pacific travel believed to be seeing the heaviest growth. These flights typically employ larger bodied aircraft (which are more fuel efficient on a seat-mile basis). Furthermore, international flights generally require refueling domestically on only one leg of the flight rather than two.

The compositional shifts in air travel do not, however, explain the entirety of the estimated 4 percent gap between the two growth rates seen over the first half of the year. While international travel during the first six months of 1990 increased at double digit rates, the increase in international seat miles over that interval represents a relatively small portion of the total airline seat miles (about 2.5 percent). It has been posited that greater price volatility in jet fuel markets since December has encouraged non-primary inventory shifts, and may be responsible for some of the short term divergence in growth rates.

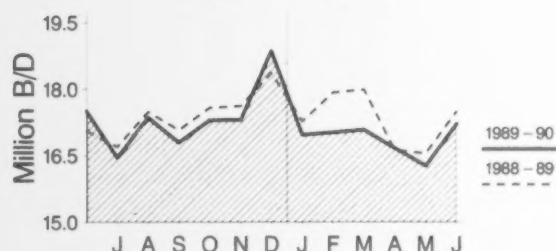
Other Oils

DECLINE MODERATES IN RECENT MONTHS.

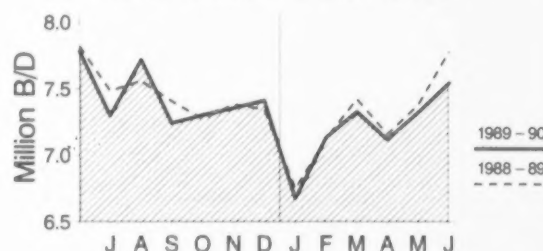
Though the 3.5 percent decline in deliveries of "other oils" in the first half matched that of last year's second half, this year's decline moderated between the first and second quarters.

For the first quarter, deliveries of "other oils" fell 6.3 percent, or 4 to 5 percent on a weather-adjusted basis. Second quarter deliveries slipped only 0.4 percent. Declines for LPGs appear to have moderated in recent months, though part of this represents a rebound in propane deliveries' growth which had been depressed by the first quarter's warm weather.

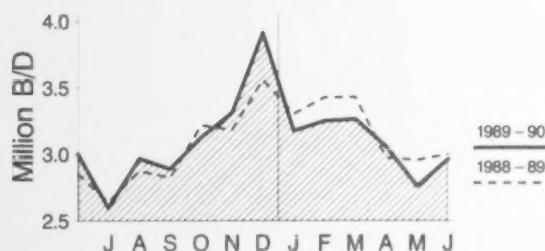
Total Deliveries



Motor Gasoline Deliveries



Distillate Deliveries



Residual Fuel Oil Deliveries



SUPPLY ^{1/}

Production

CRUDE OIL OUTPUT LOWEST IN 29 YEARS

Domestic crude oil production during the first half fell nearly 6 percent to 7.3 million B/D—the lowest level in 29 years and nearly one fourth below the peak annual level of 9.6 million B/D in 1970. More than two thirds of that decline has taken place in the past five years. The first half's decline in the lower 48 was 6.3 percent, and Alaska, 4.7 percent.

For the lower 48 alone, production slipped to 5.5 million B/D—the lowest level in nearly 40 years. An upward revision in 1989 data from the Department of Energy makes it less apparent that this year's production in the lower 48 has been declining at a lesser rate than last year. The first half 1990 decline rate, 370 thousand B/D as now computed, is only marginally less than the 385 thousand B/D decline for all of last year—though estimated production levels since the beginning of the year have remained relatively steady.

Alaskan crude oil output, which had already reversed its previous upward trend in 1989, receded another 90 thousand B/D in

The rate of decline in ethane deliveries, however, also appears to have lessened, though petrochemical feedstock preferences still lean towards heavier streams. Deliveries for liquid feedstocks (gasoil and naphtha) have actually risen about 7 percent over a year ago through April, the latest data available. On the other hand, asphalt deliveries, which had gotten a boost in the first quarter because of better-than-average weather for road work, likely suffered in the second quarter versus a year ago because of the heavy rains.

this year's first half. June's production dropped to 1.6 million B/D from levels averaging about 1.8 million B/D earlier in the year, due in part to this summer's special projects to increase gas and water handling capability and carry out overall maintenance. In the year-to-year comparison for the first half, this was partly offset by the temporary dip in Alaskan production in the spring of 1989 due to traffic restrictions following the tanker accident near Valdez. Thus, without these special factors, the decline in Alaskan production would still have been roughly 100 thousand B/D so far this year.

Imports

TOTAL IMPORTS AT 50 PERCENT FOR FIRST HALF.

Total imports in the first half reached 8.4 million B/D, up 3.7 million B/D or nearly 80 percent from the same period five years ago—and amounting to nearly 50 percent of domestic deliveries, the highest share ever for a similar period. Roughly 0.7 million B/D of the first half's imports represented additions to inventories beyond typical patterns—partly reflecting restocking early in the year following December's unusually strong,

weather-related demand, and more recently, active acquisition of crude oil supplies beyond immediate needs.

However, even adjusted for differences in inventory patterns, imports during this year's first half would still have been half again as large as for the same period in 1985. June's imports rose to 9.0 million B/D, the highest monthly level since January, and amounted to 52.3 percent of the month's deliveries.

Product imports slipped about 40 thousand B/D or 1.7 percent for the first half, mainly the result of a 142 thousand B/D drop in residual fuel oil imports. Imports of finished gasoline and components were mostly down during the early part of the year, but have been stronger in the most recent two months. June's imports of gasoline and components, though less than May's unusually high level, still exceeded half a million B/D. Imports of finished gasoline alone were up by 23 thousand B/D to 409 thousand B/D for June.

Refinery Operations GASOLINE OUTPUT PICKING UP DURING JUNE.

Though in June, input rose from May's 13.5 million B/D to nearly 13.9 million B/D, the highest in nine months, it was still 1.4 percent below a year ago. Utilization of reported capacity averaged 88.9 percent for the month; for capacity actually in operation, utilization was running at an estimated 92-93 percent, compared with peak levels in the past few years of around 93 percent or slightly above.

Input to distillation units, which had been up 1.7 percent for the first quarter, slipped by 0.4 percent during the second.

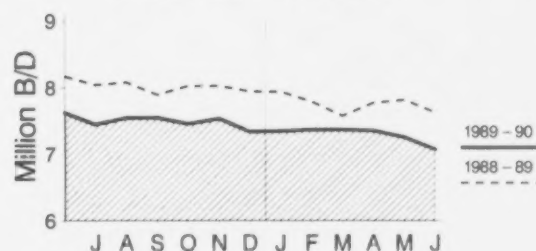
Though the second quarter's year-to-year decrease in input was partly in response to weaker deliveries, complications at some refineries have also played a role. Gasoline output, which had been up 1.3 percent in the first quarter, has been down in more recent months. Refinery problems and delayed turnarounds had reduced effective gasoline production capability for much of the spring by perhaps 300 to 400 thousand B/D, but apparently capability has been recovering.

After averaging around 6.7 million B/D over the past several months, gasoline output rose steadily over the month of June to average 7.1 million B/D for the month as a whole. At month end, gasoline production was running at over 7.3 million B/D, approaching last summer's peak levels.

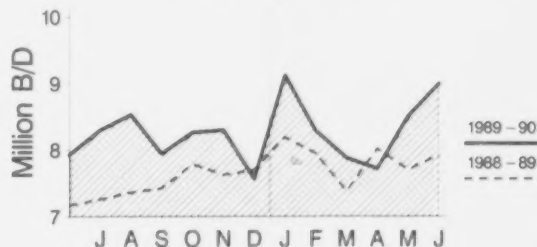
Inventories BUILD IN CRUDE TAPERS OFF IN JUNE.

At the end of June, total stocks stood at over 1.1 million barrels, 70 million barrels above a year ago and the highest level in close to four years. Three-fourths of the year-to-year rise was in crude oil inventories. Crude stocks, which had risen 43 million barrels between the beginning of the year and the end of May, remained nearly level in June at 383 million barrels. Gasoline inventories also held steady during June, ending the month at 215 million barrels. This compares with a range of 210 to 230 million barrels at the end of the previous five Junes.

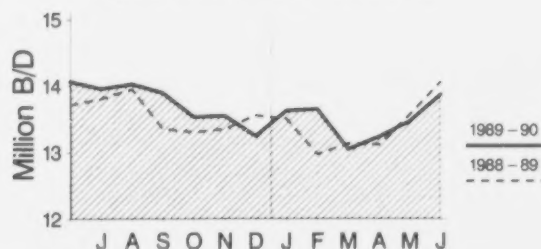
Crude Oil Production



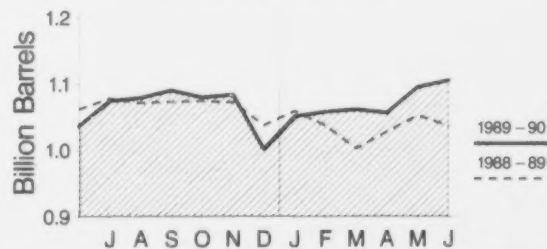
Total Imports



Input to Distillation Units



Total Inventories



- 1/ Total supply, i.e., production plus imports adjusted for net stock change is equal to total products supplied from primary storage. Total products supplied from primary storage less exports is equal to total domestic products supplied. Information contained in this report is derived from information published in the API Weekly Bulletin and is based on historical analysis of the industry. All data reflect the most current information available to the API and include all previously published revisions.
- 2/ Includes lease condensate.
- 3/ API data do not include crude oil imported for the Strategic Petroleum Reserve (SPR) nor crude oil stocks held in the SPR (according to the U.S. Department of Energy, the SPR held approximately 587 million barrels as of June 30, 1990).

ESTIMATED UNITED STATES PETROLEUM BALANCE
(Daily Average in Thousands of 42 Gallon barrels)

Products Supplied/Supply From Primary Storage	JUNE			YEAR-TO-DATE		
	1990 ¹	1989 ²	% Change	1990 ^{3R}	1989 ²	% Change
Products Supplied:						
Total motor gasoline	7,541	7,780	(3.1)	7,184	7,267	(1.1)
Finished leaded motor gasoline/*	399	916	(56.4)	429	961	(55.4)
Finished unleaded motor gasoline/*	7,142	6,864	4.1	6,755	6,306	7.1
Naphtha-jet	170	214	(20.6)	182	204	(10.8)
Kerosine-jet	1,285	1,286	(0.1)	1,289	1,248	3.3
Distillate fuel oil	2,962	3,002	(1.3)	3,076	3,180	(3.3)
Residual fuel oil	1,322	1,223	8.1	1,285	1,436	(10.5)
All other oils ⁴	4,046	4,088	(1.0)	3,962	4,104	(3.5)
Reclassified/ ⁵	-114	-96	18.8	-110	-139	(20.9)
Total domestic products supplied	17,212	17,497	(1.6)	16,868	17,300	(2.5)
Exports	821	975	(15.8)	808	844	(4.3)
Total products supplied	18,033	18,472	(2.4)	17,676	18,144	(2.6)
Supply:						
Domestic production:						
Crude oil ⁶	7,065	7,624	(7.3)	7,292	7,752	(5.9)
Natural gas liquids	1,400	1,507	(7.1)	1,502	1,621	(7.3)
Other supply ⁷	894	877	1.9	1,028	904	13.7
Total domestic supply	9,359	10,008	(6.5)	9,822	10,277	(4.4)
Imports:						
Crude oil, total ⁸	6,584	5,920	11.2	6,115	5,508	11.0
Canadian	660	673	(1.9)	617	648	(4.8)
Other	5,924	5,247	12.9	5,498	4,860	13.1
Products, total	2,417	2,002	20.7	2,310	2,349	(1.7)
Residual fuel oil	580	533	8.8	564	706	(20.1)
Other	1,837	1,469	25.1	1,746	1,643	6.3
Total imports	9,001	7,922	13.6	8,425	7,857	7.2
Total supply	18,360	17,930	2.4	18,247	18,134	0.6
Stock change, all oils	327	-542	*****	571	-10	*****
Refinery Operations						
Input to crude oil distillation units	13,874	14,067	(1.4)	13,481	13,399	0.6
Operable capacity	15,614	15,698	(0.5)	15,549	15,679	(0.8)
Refinery utilization (%) ⁹	88.9	89.6	(0.8)	86.7	85.5	1.4
Crude oil runs	13,674	13,905	(1.7)	13,320	13,226	0.7
Stocks (millions bbls.)	1990		1989 ²	% Change from		
	Jun. 30 ¹⁰	May. 31 ¹⁰		Previous Month	Year Ago	
Crude oil ⁸	383.3	384.4	331.3	(0.3)	15.7	
Unfinished oils	115.0	115.2	113.7	(0.2)	1.1	
Total motor gasoline/**	214.8	216.5	216.4	(0.8)	(0.7)	
Finished leaded motor gasoline/*	10.9	11.7	24.9	(6.8)	(56.2)	
Finished unleaded motor gasoline/*	165.2	165.7	153.1	(0.3)	7.9	
Naphtha-jet	6.4	6.6	6.2	(3.0)	3.2	
Kerosine-jet	41.7	42.2	38.4	(1.2)	8.6	
Distillate fuel oil	110.8	104.0	99.6	6.5	11.2	
Residual fuel oil	44.1	45.9	44.1	(3.9)	0.0	
All other oils	188.8	180.3 ^R	186.2	4.7	1.4	
Total all oils	1,104.9	1,095.1 ^R	1,035.9	0.9	6.7	

/1 Based on API estimated data converted to a monthly basis.

/2 Source: U.S. Department of Energy.

/3 January-April, DOE, May-June, API.

/4 Includes crude losses.

/5 Beginning with January 1981, U.S. Department of Energy began using a new data collection system which encompasses a method to ascertain the amount of product reclassified during the production phase. So that there will be no double counting of these volumes, they are subtracted from the total domestic products supplied.

/6 API estimate; includes lease condensate.

/7 Includes Unaccounted-for crude oil, Processing gain and Field Production of other hydrocarbons and alcohol.

/8 Data do not include oil imported for the Strategic Petroleum Reserve (SPR) nor crude oil stocks held in the SPR.

/9 Represents "Input to crude oil distillation units" as a percent of "Operable capacity".

/10 Derived by interpolating API weekly stocks data.

/R Revised.

/* Included in motor gasoline.

** Includes finished leaded, finished unleaded, and motor gasoline blending components stocks.

ESTIMATED UNITED STATES PETROLEUM BALANCE
(Daily Average in Thousands of 42 Gallon barrels)

Products Supplied/Supply From Primary Storage	2ND QUARTER		
	1990 ¹	1989 ²	% Change
Products Supplied:			
Total motor gasoline	7,326	7,439	(1.5)
Finished leaded motor gasoline/*	420	917	(54.2)
Finished unleaded motor gasoline/*	6,906	6,522	5.9
Naphtha-jet	180	213	(15.5)
Kerosine-jet	1,279	1,179	8.5
Distillate fuel oil	2,925	2,977	(1.7)
Residual fuel oil	1,176	1,246	(5.6)
All other oils ³	3,938	3,953	(0.4)
Reclassified ⁴	-113	-122	(7.4)
Total domestic products supplied	16,711	16,885	(1.0)
Exports	812	858	(5.4)
Total products supplied	17,523	17,743	(1.2)
Supply:			
Domestic production:			
Crude oil ⁵	7,225	7,738	(6.6)
Natural gas liquids	1,470	1,601	(8.2)
Other supply ⁶	915	897	2.0
Total domestic supply	9,610	10,236	(6.1)
Imports:			
Crude oil, total/ ⁷	6,186	5,753	7.5
Canadian	648	640	1.3
Other	5,538	5,113	8.3
Products, total	2,226	2,125	4.8
Residual fuel oil	536	584	(8.2)
Other	1,690	1,541	9.7
Total imports	8,412	7,878	6.8
Total supply	18,022	18,114	(0.5)
Stock change, all oils	499	371	*****
Refinery Operations			
Input to crude oil distillation units	13,525	13,585	(0.4)
Operable capacity	15,575	15,692	(0.7)
Refinery utilization (%) ⁸	86.8	86.6	0.2
Crude oil runs	13,356	13,422	(0.5)
2ND QUARTER			
Stocks (millions bbls.)	1990/ ⁹	1989 ²	% Change
Crude oil/ ⁷	383.3	331.3	15.7
Unfinished oils	115.0	113.7	1.1
Total motor gasoline/**	214.8	216.4	(0.7)
Finished leaded motor gasoline/*	10.9	24.9	(56.2)
Finished unleaded motor gasoline/*	165.2	153.1	7.9
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Distillate fuel oil	110.8	99.6	11.2
Residual fuel oil	44.1	44.1	0.0
All other oils	188.8	186.2	1.4
Total all oils	1,104.9	1,035.9	6.7

/1 Source: U.S. Department of Energy, April; May-June, API.

/2 Source: U.S. Department of Energy.

/3 Includes crude losses.

/4 Beginning with January 1981, U.S. Department of Energy began using a new data collection system which encompasses a method to ascertain the amount of product reclassified during the production phase. So that there will be no double counting of these volumes, they are subtracted from total domestic products supplied.

/5 API estimate; includes lease condensate.

/6 Includes Unaccounted-for crude oil, Processing gain and Field Production of other hydrocarbons and alcohol.

/7 Data do not include oil imported for the Strategic Petroleum Reserve (SPR) nor crude oil stocks held in the SPR.

/8 Represents "Input to crude oil distillation units" as a percent of "Operable capacity".

/9 Derived by interpolating API weekly stocks data.

/R Revised.

/* Included in motor gasoline.

/** Includes finished leaded, finished unleaded, and motor gasoline blending components stocks.



Monthly Statistical Report

Prepared by the Finance, Accounting, and Statistics Department

Vol. 14, No. 7

AUGUST 16, 1990

JULY 1990

SUMMARY

Though overshadowed by troubling circumstances in the Middle East in early August, July's supply/demand developments still included some otherwise noteworthy events.

Domestic refinery activity, already beginning to recover in June from problems which had hampered operations for much of the spring, surged in July, with utilization reaching levels among the highest ever observed. Deliveries took off as well, rising 6.5 percent or over 1 million B/D over a year ago—contrasting with a first-half decline of about 2 percent.

Gasoline deliveries jumped an unusually large 6.0 percent for the month—versus a first-half decline of about 1 percent. Distillate deliveries rose nearly 13 percent, also contrasting with a weak first half. Deliveries of "other oils" rose 5.1 percent versus a first-half decline of around 3 percent, while residual fuel oil deliveries increased for the third month in a row. Kerosine jet fuel deliveries rose a moderate 4.0 percent.

Despite the unusually large increase in deliveries, it is highly unlikely that actual consumption rose so strongly, especially given the current lackluster economy; we estimate overall consumption continued to be flat to down slightly. More likely, some distributors and end users, noting crude oil prices which

had risen steadily since the end of June and the increasing availability of products from refineries, may have moved to replenish nonprimary inventories.

July's crude production fell 5.3 percent from a year ago, to 7.0 million B/D. Though this was partly the result of reduced North Slope production because of special projects there to perform maintenance and to increase gas and water handling capability, declines in production in both the lower 48 and Alaska have reduced domestic production by about 2 million B/D or 20 percent since early 1986.

Total imports continued near June's 9 million B/D level and were up 8.4 percent from a year ago. July's imports continued to exceed half of domestic deliveries, and for the first seven months of this year, imports have averaged 50.0 percent of deliveries.

Total inventories rose 17 million barrels during July. Crude stocks slipped slightly from June's unusually high levels, but still exceeded 380 million barrels. Despite the month's strong deliveries, high refinery output added 3 million barrels to gasoline inventories during the month.

PRODUCT SUPPLIED ^{1/}

Gasoline

GASOLINE JUMPS 6 PERCENT.

Gasoline deliveries jumped 6.0 percent in July, after falling about 1 percent in the first half

and about 3 percent in June. Just as gasoline deliveries' earlier weakness this year seemed to understate what other indicators suggested for consumption, July's unusually large increase seems highly unlikely to represent a surge in actual usage, which is believed to have continued to be flat to down slightly. In fact, incorporating July's figure into the year-to-date total makes this year's deliveries for the first seven months roughly flat when compared with those of the year-ago period.

Though the heavy rains of May and June may have hindered travel or deliveries temporarily, this would not explain July's surge, especially with the apparent sluggishness of the economy. The increasing availability of product over the past month or so as refinery output strengthened, combined with the observation that refiner's crude oil costs had been rising steadily since the end of June, may have led some distributors and others to conclude that it was an opportune time to replenish nonprimary inventories.

Meanwhile, as if to corroborate that July's unusually strong deliveries ought not to be taken too seriously as an indicator of consumption growth, the latest data on travel slowed from growth rates of around 3 percent in March and April to 2.6 percent in May. This smaller increase, however, was still not a marked departure from travel growth last year which had averaged 2.8 percent.

Distillates

STRONG IN JULY BUT MODERATE FOR YEAR TO DATE.

Distillate deliveries, reversing the declines of the previous two months, rose 12.6 percent after a weak first half. Though this

	API ESTIMATES		YEAR-TO-DATE	
	JULY			
	Million B/D	Percent Change	Million B/D	Percent Change
Total domestic deliveries	17.5	6.5	17.0	(0.8)
Crude production ^a	7.0	(5.3)	7.3	(5.9)
Total imports ^a	9.0	8.4	8.5	7.7
Stocks (million bbl) ^b	1,110	3.3	na	na

was partly the result of comparison against weak deliveries a year ago, deliveries this July were, as with gasoline, unusually strong for the month.

Though July's deliveries were unusually strong, comparison over a longer period gives a better indication of what the underlying trend in consumption has likely been in the past several months. Year-to-date deliveries were down 0.6 percent, but on a weather-adjusted basis, up a little over 1 percent.

Residual Fuel Oil UP THIRD MONTH IN A ROW.

Deliveries of residual fuel oil were up 4.4 percent in July, the third consecutive monthly increase. However, for the first seven months of the year, residual fuel supplied has been down nearly 7 percent. Declining persistently between August 1989 and April of this year, residual deliveries' year-to-year growth has averaged about 7 percent during the past three months. Growth in electricity demand as well as growing bunker fuel demand (to satisfy increasing oil imports) are believed to have contributed to the month's gains.

Nationwide, electricity demand was up by about 3.5 percent during July. However, in the New England and Mid-Atlantic states, which rely most heavily on residual-fired generation, growth was slightly stronger.

Vessel bunkering has historically been a leading use for residual fuel (second only to electric utility generation). In 1988, consumption in this sector accounted for nearly 30 percent of residual fuel demand. Because petroleum imports represent a large share of total water-borne U.S. imports (by volume), residual fuel use in vessel bunkering typically moves in tandem with changing levels of these imports. Between 1984 and 1988, for example, residual fuel demand for bunker fuel increased by 39 percent while imports of petroleum increased by 36 percent.

With petroleum imports accounting for more than 50 percent of domestic consumption in July, bunker fuel demand is believed to have been growing.

Kerosine Jet Fuel DELIVERIES UP 4 PERCENT.

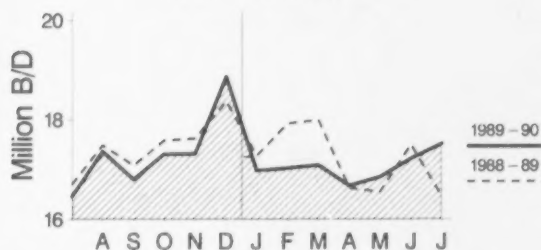
Deliveries of kerosine jet fuel were up 4.0 percent in July, a rate comparable to that seen for the first seven months of the year as a whole. Growth during the month is believed to have trailed growth in miles flown (up an estimated 5-6 percent).

On domestic routes, growth in passenger travel has lagged behind growth in airline seating capacity. In recent months, load factors on these routes have been down by more than four points versus corresponding months last year. On international flights, however, load factors have been climbing. While passenger travel continues to grow at double digit rates, growth in aircraft miles has been slower. Part of the increase in international load factors reflects a trend among airlines to offer international flights on smaller aircraft. Transportation Department statistics confirm this, showing average capacity on international flights to have declined by about 2 seats or 1 percent over the past year.

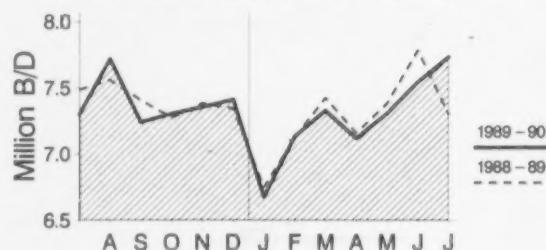
Other Oils RISE CONTRASTS WITH FIRST-HALF DECLINE.

Deliveries of "other oils" rose 5.1 percent in July, contrasting with a first half decrease of around 3 percent. Though deliveries in this category appear to have moderated their decline in recent months, July's deliveries, which showed the first year-to-year increase in over a year, were still above the trend of recent prior months.

Total Deliveries



Motor Gasoline Deliveries



Distillate Deliveries



Residual Fuel Oil Deliveries



SUPPLY

Production

CRUDE OIL FALLS 5.3 PERCENT.

July's crude production fell 5.3 percent or about 400 thousand B/D from a year ago, continuing the decline which has persisted for more than four years and has reduced domestic crude oil output by roughly 2 million B/D or 20 percent since early 1986. For the year to date, U.S. crude production has fallen 5.9 percent or about 450 thousand B/D. In the lower 48, production for the first seven months dropped approximately 360 thousand B/D, and Alaskan production, 90 thousand B/D. Though Alaskan production in July was reduced because of projects this summer to perform maintenance and increase gas and water handling capability, production last July was also below trend, so that the year-to-year decline of about 90 thousand B/D was in line with the year-to-date average.

Well completions in the first half, according to API's latest *Quarterly Completion Report*, were up about 9 percent over a year ago, with oil completions up 13 percent and gas completions up 18 percent. The increase for oil, however, was against the lowest rate of oil completions since the early 1970s; oil completions have mostly drifted downwards since the substantial oil price decline of 1986, when oil completions dropped by half in one year.

Imports

YEAR-TO-DATE IMPORTS AT 50 PERCENT.

Imports for July were up 8.4 percent for the month and 7.7 percent for the year to date. Crude oil imports rose 642 thousand B/D; product imports slipped 53 thousand B/D, contrasting with year-to-year increases in May and June. Total imports as a percent of domestic deliveries amounted to 51.3 percent for July—the third month in a row for which the figure has exceeded the halfway mark—and 50.0 percent for the year to date. Even if adjusted for imports above those that would have been needed to meet demand and fulfill typical inventory patterns, the percentage for the year to date would still have been about 47 percent.

Imports of gasoline and components continued at over half a million B/D for the third month in a row, rising 80 thousand B/D from a year ago to 519 thousand B/D. Imports of finished gasoline rose 78 thousand B/D to 461 thousand B/D. Distillate imports declined 61 thousand B/D to 273 thousand B/D, while residual fuel oil imports dropped 16 thousand B/D to 540 thousand B/D. Imports of kerosine jet fuel declined 28 thousand B/D to 83 thousand B/D, near the lower end of the 70 - 150 thousand B/D range of the past year or two.

Refinery Operations

ACTIVITY STRONG IN JULY.

Refinery activity, which in June had begun to recover from various refinery problems that hampered operations during the spring, surged in July. Input to distillation units reached 14.5 million B/D, up nearly 4 percent over a year ago and the highest monthly level in more than a decade. Utilization of reported capacity reached 93.5 percent, nearly four points above the recent-year high set in June 1989. For capacity in actual operation, utilization is estimated to have exceeded 95 percent.

Gasoline output rose to 7.35 million B/D, about even with strong levels a year ago July, when gasoline production had reached the highest monthly level since 1978. Production levels for distillate, kerosine jet fuel, and residual fuel oil rose 4.7 percent, 8.1 percent, and 17 percent, respectively.

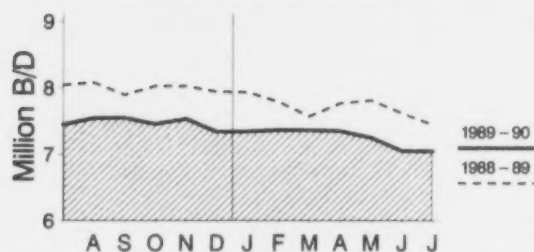
Inventories

TOTAL STOCKS UP 17 MILLION BARRELS.

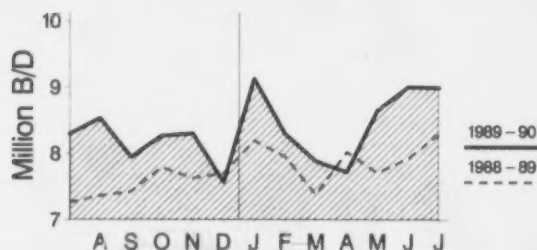
Increases in product stocks raised overall inventories by 17 million barrels during July. Though crude oil stocks declined slightly to 382 million barrels, they continued in a range that, until recently, has not been experienced since the early 1980s.

Despite extremely strong gasoline deliveries, the high level of refinery production led to a 3 million barrel increase in gasoline stocks during July to 218 million barrels. In the previous five years, gasoline stocks at the end of July have ranged from 210 to 230 million barrels. Distillate stocks rose 8 million barrels during the month to 119 million barrels.

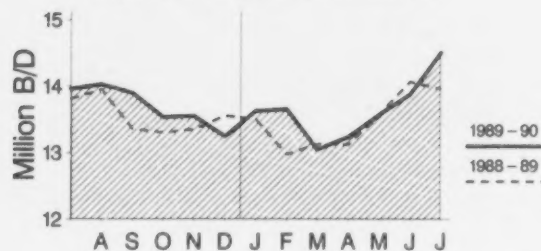
Crude Oil Production



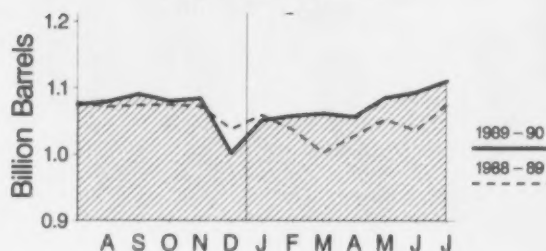
Total Imports



Input to Distillation Units



Total Inventories



- 1/ Total supply, i.e., production plus imports adjusted for net stock change is equal to total products supplied from primary storage. Total products supplied from primary storage less exports is equal to total domestic products supplied. Information contained in this report is derived from information published in the API Weekly Bulletin and is based on historical analysis of the industry. All data reflect the most current information available to the API and include all previously published revisions.
- 2/ Includes lease condensate.
- 3/ API data do not include crude oil imported for the Strategic Petroleum Reserve (SPR) nor crude oil stocks held in the SPR (according to the U.S. Department of Energy, the SPR held approximately 587 million barrels as of July 31, 1990).

ESTIMATED UNITED STATES PETROLEUM BALANCE
(Daily Average in Thousands of 42 Gallon barrels)

Products Supplied/Supply From Primary Storage	JULY			YEAR-TO-DATE		
	1990 ¹	1989 ²	% Change	1990 ^{3a}	1989 ²	% Change
Products Supplied:						
Total motor gasoline	7,731	7,296	6.0	7,261	7,272	(0.2)
Finished leaded motor gasoline/*	426	787	(45.9)	426	935	(54.4)
Finished unleaded motor gasoline/*	7,305	6,509	12.2	6,835	6,337	7.9
Naphtha-jet	133	204	(34.8)	176	204	(13.7)
Kerosine-jet	1,268	1,219	4.0	1,289	1,243	3.7
Distillate fuel oil	2,922	2,596	12.6	3,074	3,094	(0.6)
Residual fuel oil	1,343	1,286	4.4	1,316	1,414	(6.9)
All other oils ⁴	4,231	4,024	5.1	4,024	4,092	(1.7)
Reclassified ⁵	-112	-172	(34.9)	-94	-143	(34.3)
Total domestic products supplied	17,516	16,453	6.5	17,046	17,176	(0.8)
Exports	725	780	(7.1)	772	835	(7.5)
Total products supplied	18,241	17,233	5.8	17,818	18,011	(1.1)
Supply:						
Domestic production:						
Crude oil ⁶	7,046	7,444	(5.3)	7,255	7,707	(5.9)
Natural gas liquids	1,432	1,541	(7.1)	1,487	1,609	(7.6)
Other supply ⁷	1,325	1,198	10.6	1,061	947	12.0
Total domestic supply	9,803	10,183	(3.7)	9,803	10,263	(4.5)
Imports:						
Crude oil, total ⁸	6,781	6,139	10.5	6,224	5,600	11.1
Canadian	678	596	13.8	627	641	(2.2)
Other	6,103	5,543	10.1	5,597	4,959	12.9
Products, total	2,208	2,155	2.5	2,303	2,321	(0.8)
Residual fuel oil	540	556	(2.9)	565	684	(17.4)
Other	1,668	1,599	4.3	1,738	1,637	6.2
Total imports	8,989	8,294	8.4	8,527	7,921	7.7
Total supply	18,792	18,477	1.7	18,330	18,184	0.8
Stock change, all oils	551	1,244	*****	512	173	*****
Refinery Operations						
Input to crude oil distillation units	14,502	13,957	3.9	13,645	13,480	1.2
Operable capacity	15,516	15,698	(1.2)	15,532	15,681	(1.0)
Refinery utilization (%) ⁹	93.5	88.9	5.2	87.9	86.0	2.2
Crude oil runs	14,297	13,848	3.2	13,469	13,317	1.1
	1990		1989 ²	% Change from		
Stocks (millions bbls.)	Jul. 31 ¹⁰	Jun. 30 ¹⁰		Jul. 31	Previous Month	Year Ago
Crude oil ⁶	381.7	383.3	333.2	(0.4)	14.6	
Unfinished oils	111.8	115.0	109.0	(2.8)	2.6	
Total motor gasoline/**	217.6	214.8	228.9	1.3	(4.9)	
Finished leaded motor gasoline/*	10.6	10.9	24.8	(2.8)	(57.3)	
Finished unleaded motor gasoline/*	167.2	165.2	165.3	1.2	1.1	
Naphtha-jet	6.4	6.4	6.6	0.0	(3.0)	
Kerosine-jet	44.7	41.7	40.8	7.2	9.6	
Distillate fuel oil	119.1	110.8	115.0	7.5	3.6	
Residual fuel oil	45.1	44.1	42.7	2.3	5.6	
All other oils	183.8	177.0 _R	198.3	3.8	(7.3)	
Total all oils	1,110.2	1,093.1 _R	1,074.5	1.6	3.3	

/1 Based on API estimated data converted to a monthly basis.

/2 Source: U.S. Department of Energy.

/3 January-May, DOE, June-July API.

/4 Includes crude losses.

/5 Beginning with January 1981, U.S. Department of Energy began using a new data collection system which encompasses a method to ascertain the amount of product reclassified during the production phase. So that there will be no double counting of these volumes, they are subtracted from the total domestic products supplied.

/6 API estimate; includes lease condensate.

/7 Includes Unaccounted-for crude oil, Processing gain and Field Production of other hydrocarbons and alcohol.

/8 Data do not include oil imported for the Strategic Petroleum Reserve (SPR) nor crude oil stocks held in the SPR.

/9 Represents "Input to crude oil distillation units" as a percent of "Operable capacity".

/10 Derived by interpolating API weekly stocks data.

/R Revised.

/* Included in motor gasoline.

/** Includes finished leaded, finished unleaded, and motor gasoline blending components stocks.



Monthly Statistical Report

Prepared by the Finance, Accounting, and Statistics Department

Vol. 14, No.8

SEPTEMBER 19, 1990

AUGUST 1990

SUMMARY

Iraq's invasion of Kuwait on August 2 and the ensuing international embargo cut off about 4 million B/D of world crude oil supplies—equal to about 7 percent of world production and about 12 percent of international oil trade—at a time when world crude oil production was already running at close to 95 percent of capacity.

Because of concerns about reduced supplies from Iraq and Kuwait and uncertainties about events that might affect supplies from other parts of the Persian Gulf—which have accounted for over a quarter of world crude oil production and two thirds of its reserves—crude oil prices worldwide were bid up rapidly. World oil prices, which had already risen roughly 30 percent since mid-June as OPEC's production agreement was taking shape, rose an additional 60-70 percent in the three weeks following the invasion. With continued volatile price swings near the end of the month, the net increase since mid-June ranged from 70 to over 100 percent.

Product prices were bid up as well worldwide, on wholesale, spot, and retail levels, though not always by as much as the increase in crude costs. As crude prices fluctuated over a roughly \$6-per-barrel range in the latter part of the month, the net rise in crude costs since mid-June worked out to anything from 25 to 40 cents per gallon. Retail gasoline prices in the U.S. rose by about 20 cents per gallon over the month, while in Europe increases ranged from 20 to 40 cents per gallon. In Japan, where prices, even before the invasion, equated to about \$1.70 a gallon, excluding tax, prices rose more slowly.

Economic principles indicate that, given higher prices, a reduction in consumption would nearly always be observed,

although perhaps at a lag. While it is true that August's 3.1 percent rise in domestic deliveries was substantially less than July's over 6 percent increase, it still exceeded the underlying trend in consumption which is estimated to have been roughly flat to down slightly prior to August's price increases. Apparently, just as for July, part of August's deliveries represented an increase in secondary and tertiary inventories rather than a rise in consumption. The strength of overall deliveries, however, appeared to be waning towards the latter part of the month.

In the face of strong deliveries, refinery production of gasoline and distillate reached the highest levels for any August since the 1970s. Even so, gasoline inventories declined 7 million barrels to an end-of-season level of 211 million barrels, 5 or 6 million barrels above the estimated minimum operating level. Distillate stocks' 8 million barrel increase was typical for the month, and month-end levels of 127 million barrels were 3 million barrels above the recent-year August average.

Imports declined slightly from July's levels but were up 4.1 percent over a year ago. With shipping lags of a month or more from the Middle East, shipments loaded before the Iraqi invasion continued to arrive during August, with some scheduled to continue arriving through September. Spot gasoline prices in Europe, which were running substantially higher than in the U.S. during August, may have provided an incentive for redirection of some product imports and a possible increment to exports, though little if any solid information on exports for the month is currently available. Domestic crude oil production continued to decline, falling 4.8 percent from a year ago.

PRODUCT SUPPLIED¹

Gasoline

DELIVERIES RISE, BUT LESS THAN FOR JULY.

Gasoline deliveries' rate of growth slowed from July's 6 percent increase to 0.7 percent in August. Both increases,

however, contrasted with the first-half decline in deliveries of about 1 percent. With some demand response to higher prices already taking place and an economy that has apparently continued to weaken, actual consumption in August most likely declined somewhat from a year ago. Thus, the year-to-year increase in deliveries appears to represent additions to nonprimary inventory rather than an increase in consumption, particularly in the early part of the month.

By month-end, retail prices were up about 20 cents per gallon over levels earlier in the summer, slipping a few cents near the end of the month. This put retail prices, on an inflation-adjusted basis, roughly 20 percent above the relatively stable levels experienced in the past four years but lower than in the first half of

	API ESTIMATES AUGUST		YEAR-TO-DATE	
	Million B/D	Percent Change	Million B/D	Percent Change
Total domestic deliveries	17.9	3.1	17.1	(0.3)
Crude production ²	7.2	(4.8)	7.3	(5.6)
Total imports ³	8.9	4.1	8.5	6.7
Stocks (million bbl) ⁴	1,111	2.9	na	na

the 1980s, when retail prices were as much as 50 percent higher in today's dollars.

Though some demand response might be expected as a result of August's higher prices, it is unclear whether this response would be as large as in the past, due to current fleet's greater average fuel efficiency and the resulting impact on fuel costs. For a car with typical monthly mileage and average efficiency for those currently on the road, a 20 cent price increase works out to about \$8 per month in increased fuel costs. At 1973 fuel efficiencies, this would have been about 50 percent more.

Distillates

GROWTH MODERATES, STILL LIKELY EXCEEDS USAGE.

Distillate deliveries rose 2.8 percent, year to year in August, much less than July's double-digit rate but still diverging from estimated previous consumption trends. Distillate deliveries, which had already slowed to about a 1 percent growth rate last year from a nearly 5 percent rise in 1988, actually declined about 3 percent in this year's first half—though primarily because of unusually warm weather early in the year.

The underlying trend earlier this year had been estimated to be one of only slight growth, coming mainly from small increases in on-highway diesel usage. With the apparent slowing of the economy in recent months, the year-to-year increases in deliveries in the past two months, as with gasoline, more likely represent additions to nonprimary storage rather than any surge in consumption.

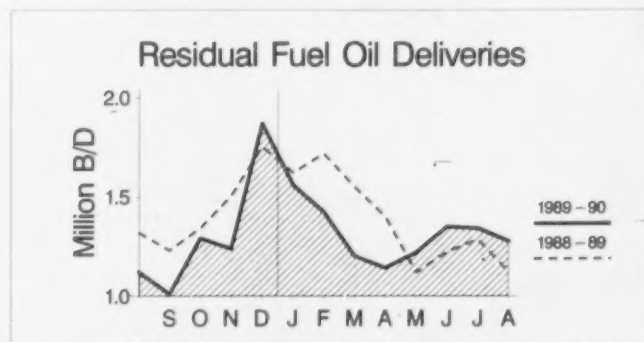
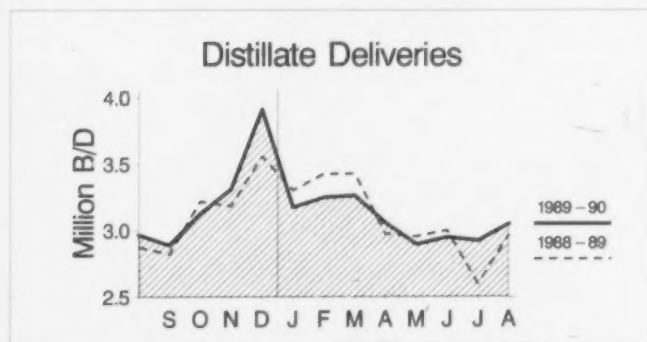
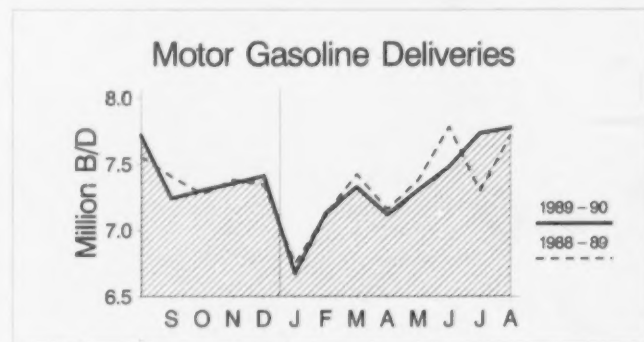
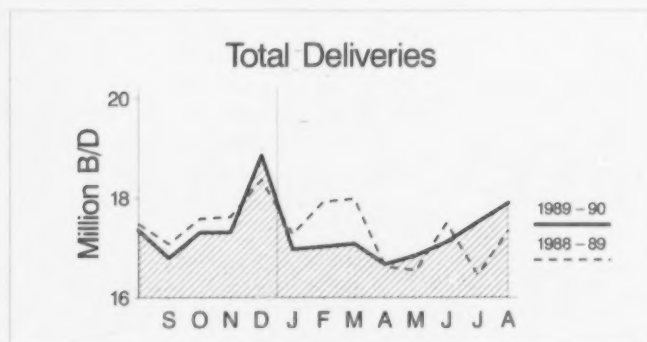
Residual Fuel Oil

DELIVERIES UP FOUR MONTHS IN A ROW.

Residual fuel deliveries were up nearly 14 percent in August, the fourth consecutive monthly increase. Despite this strong rise, growth in actual consumption was probably not so robust. While electricity demand grew slightly above trend during the month, resid prices increased relative to natural gas; and while military demand was stimulated by the heightened U.S. involvement in the Persian Gulf, military use of resid represents only a small share of total residual fuel demand. It is believed that, as with other products, changes in non-primary inventories contributed to a portion of the deliveries' increase.

Nationwide, electricity demand was up by about 5 percent in August, above the trend of about 3 percent seen over the past year. Likewise, growth was above trend in the resid-intensive New England and Mid-Atlantic states where generation was up about 4 percent. Electric utility purchases of residual fuel in these states typically account for about two thirds of nationwide electric utility resid demand, and roughly 30 percent of nationwide resid use.

Vessel bunkering is believed to have maintained strength in August. While a weakening world economy has slowed growth in the foreign trade sector, U.S. waterborne imports of petroleum remain high. Also a factor in domestic bunker demand are prices in U.S. ports, which (although they have risen) have become more competitive with foreign ports following the Iraqi invasion. Demand is believed to have seen strong growth in military bunkering. However, military demand has historically



accounted for about one half of one percent of the domestic residual fuel oil market.

Kerosine Jet Fuel
DELIVERIES RISE
12.4 PERCENT.

Deliveries of kerosine jet fuel were up 12.4 percent in August—above the trend growth in both jet fuel deliveries (previously running between 4 and 5 percent) and jet travel (running between 6 and 7 percent). The sizeable monthly increase in jet fuel supplied is believed to be due in part to shifts into non-primary inventories. It may also reflect unquantified increases in military jet-fuel use to support the U.S. airlift to Saudi Arabia.

Data for July (the most recent available) show growth in airline traffic continuing in the 7 percent range. Despite the steady

growth in miles flown, however, there are signs of weakening demand, particularly on domestic routes. Declining load factors (down by about 4 points from last year) tend to hide the slowing growth in passenger travel. Even though load factors are up on international flights, the total load factor has come down by about 2 points versus last year.

Other Oils
RECENT INCREASES
CONTRAST WITH
FIRST-HALF DROP.

Deliveries of other oils followed a pattern similar to other products in August. Deliveries for the month were up an estimated 2.5 percent, less than the roughly 5 percent increase for July but contrasting with declines earlier in the year.

SUPPLY

Production

CRUDE PRODUCTION
FALLS 4.8 PERCENT.

Domestic crude oil production fell 4.8 percent or about 360 thousand B/D, year to year, for August. Alaskan production, which had been depressed as a result of maintenance and upgrading projects on the North Slope over the summer, recovered by 125 thousand B/D from July to 1.76 million B/D in August. Alaskan output, however, which began to decline last year, was still down by 110 thousand B/D from last August. Initiatives announced by North Slope producers to increment production there are scheduled to begin having an effect later in the year.

In the lower 48, crude oil production fell 4.4 percent or about 250 thousand B/D. A slowing in the decline trend of lower 48 production so far this year has become more apparent as more data have accumulated. According to the latest estimates, year-to-year declines in the lower 48 for much of 1990 have been running at 250 to 350 thousand B/D; in 1989, production outside Alaska had fallen about 385 thousand B/D.

Imports
DOWN FROM JULY,
UP FROM A YEAR AGO.

Imports in August, at 8.9 million B/D, were down slightly from July's 9.0 million B/D but up 4.1 percent over a year ago. With transit times of a month or more, oil loaded in the Middle East prior to the international embargo was still arriving in the U.S. throughout the month; thus, August import levels were relatively unaffected by the Mid-East crisis.

Product imports continued in the 2.2 to 2.3 million B/D of the past several months, though they were up about 17 percent from below-trend levels a year ago. Spot gasoline prices in Europe, which were running substantially higher than in the U.S. during August, may have provided an incentive for redirection some product imports and a possible increment to exports during the month—though imports of finished gasoline are still estimated to have been close to last August's 360 thousand B/D. Estimates

published here of total exports and of domestic gasoline deliveries include the effects of an upward adjustment of gasoline exports by about 20 thousand B/D, to 50 thousand B/D; however, little solid information on exports during August is currently available. Distillate imports rose about 70 thousand B/D, year to year, to 322 thousand B/D, while residual fuel oil imports increased 113 thousand B/D to 614 thousand B/D. Kerosine jet fuel imports were about even with a year ago.

Total imports in August amounted to 49.6 percent of deliveries, about the same as the year-to-date average of 49.8 percent.

Refinery Operations
OUTPUT OF GASOLINE,
DISTILLATE STRONG.

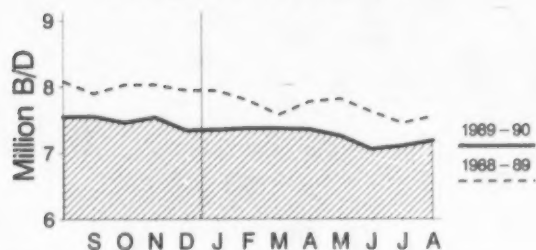
Refineries ran at nearly full practical capacity in August, with input to distillation units up 2.8 percent over a year ago and utilization of capacity in actual operation exceeding 95 percent. Utilization of reported capacity averaged about 93 percent. Gasoline production reached 7.3 million B/D, up more than 2 percent over a year ago, while distillate output rose nearly 6 percent to 3.1 million B/D—with output of both products at the highest August levels since the late 1970s. Residual fuel oil output rose 8.1 percent, and kerosine jet fuel production, 0.7 percent.

Inventories
GASOLINE FALLS,
DISTILLATE RISES.

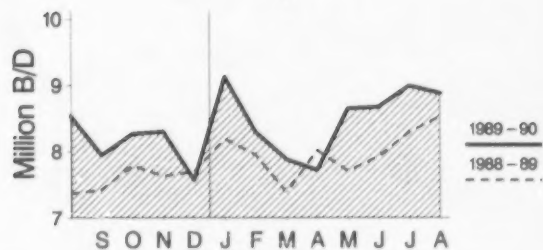
Total inventories were nearly unchanged from July, and at 1.1 billion barrels, were slightly higher than one year earlier. Crude stocks declined 9 million barrels over the month to 373 million barrels but were still 32 million barrels above year-ago-levels. Despite high gasoline production at refineries, the month's strong deliveries reduced inventories by 7 million barrels. Gasoline inventories at the end of the peak driving season were 211 million barrels, a level 5 or 6 million barrels above estimated minimum operating levels.

Distillate stocks rose 8 million barrels, about in line with the recent-year average for the month. At month-end, inventories stood at 127 million barrels, 3 million barrels above the recent-year average for August.

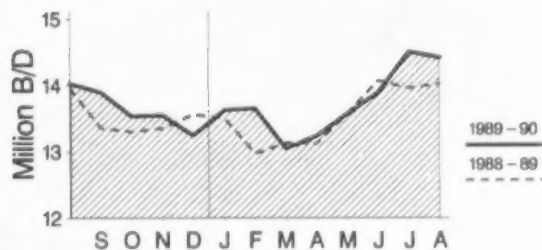
Crude Oil Production



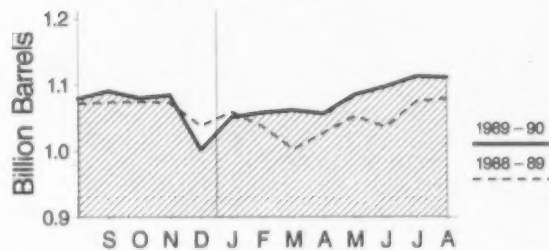
Total Imports



Input to Distillation Units



Total Inventories



1/ Total supply, i.e., production plus imports adjusted for net stock change is equal to total products supplied from primary storage. Total products supplied from primary storage less exports is equal to total domestic products supplied. Information contained in this report is derived from information published in the API Weekly Bulletin and is based on historical analysis of the industry. All data reflect the most current information available to the API and include all previously published revisions.

2/ Includes lease condensate.

3/ API data do not include crude oil imported for the Strategic Petroleum Reserve (SPR) nor crude oil stocks held in the SPR (according to the U.S. Department of Energy, the SPR held approximately 590 million barrels as of August 31, 1990).

ESTIMATED UNITED STATES PETROLEUM BALANCE
(Daily Average in Thousands of 42 Gallon barrels)

Products Supplied/Supply From Primary Storage	AUGUST			YEAR-TO-DATE		
	1990 ¹	1989 ²	% Change	1990 ^{3M}	1989 ²	% Change
Products Supplied:						
Total motor gasoline	7,773	7,717	0.7	7,319	7,328	(0.1)
Finished leaded motor gasoline/*	413	783	-(47.3)	427	916	(53.4)
Finished unleaded motor gasoline/*	7,360	6,934	6.1	6,892	6,412	7.5
Naphtha-jet	187	224	(16.5)	177	206	(14.1)
Kerosine-jet	1,416	1,260	12.4	1,306	1,245	4.9
Distillate fuel oil	3,048	2,966	2.8	3,069	3,078	(0.3)
Residual fuel oil	1,277	1,121	13.9	1,315	1,377	(4.5)
All other oils	4,317	4,213	2.5	4,054	4,108	(1.3)
Reclassified	-118	-141	(16.3)	-97	-143	(32.2)
Total domestic products supplied	17,900	17,360	3.1	17,143	17,199	(0.3)
Exports	746	967	(22.9)	766	852	(10.1)
Total products supplied	18,646	18,327	1.7	17,909	18,051	(0.8)
Supply:						
Domestic production:						
Crude oil	7,182	7,544	(4.8)	7,252	7,686	(5.6)
Natural gas liquids	1,455	1,504	(3.3)	1,490	1,596	(6.6)
Other supply	1,077	897	20.1	1,086	941	15.4
Total domestic supply	9,714	9,945	(2.3)	9,828	10,223	(3.9)
Imports:						
Crude oil, total*	6,552	6,533	0.3	6,243	5,719	9.2
Canadian	693	616	12.5	639	638	0.2
Other	5,859	5,917	(1.0)	5,604	5,081	10.3
Products, total	2,326	1,995	16.6	2,289	2,279	0.4
Residual fuel oil	614	501	22.6	566	661	(14.4)
Other	1,712	1,494	14.6	1,723	1,618	6.5
Total imports	8,878	8,528	4.1	8,532	7,998	6.7
Total supply	18,592	18,473	0.6	18,360	18,221	0.8
Stock change, all oils	-54	146	*****	451	170	*****
Refinery Operations						
Input to crude oil distillation units	14,412	14,024	2.8	13,744	13,550	1.4
Operable capacity	15,516	15,706	(1.2)	15,519	15,685	(1.1)
Refinery utilization (%)	92.9	89.3	4.0	88.6	86.4	2.5
Crude oil runs	14,226	13,861	2.6	13,568	13,386	1.4
Stocks (millions bbls.)	1990		1989 ²	% Change from		
	Aug. 31 ¹⁰	Jul. 31 ¹⁰		Previous Month	Year Ago	
Crude oil*	372.5	381.7	341.0	(2.4)	9.2	
Unfinished oils	111.4	111.8	106.2	(0.4)	4.9	
Total motor gasoline/**	210.6	217.6	220.7	(3.2)	(4.6)	
Finished leaded motor gasoline/*	10.3	10.3	22.3	0.0	(53.8)	
Finished unleaded motor gasoline/*	162.4	167.2	159.7	(2.9)	1.7	
Naphtha-jet	5.9	6.4	6.0	(7.8)	(1.7)	
Kerosine-jet	41.9	44.7	42.3 ⁶	(6.3)	(0.9)	
Distillate fuel oil	127.4	119.1	116.3	7.0	9.5	
Residual fuel oil	49.4	45.1	44.5	9.5	11.0	
All other oils	191.8	186.1 ^R	202.1	3.1	(5.1)	
Total all oils	1,110.9	1,112.5 ^R	1,079.1	(0.1)	2.9	

/1 Based on API estimated data converted to a monthly basis.

/2 Source: U.S. Department of Energy.

/3 January-June, DOE, July-August, API.

/4 Includes crude losses.

/5 Beginning with January 1981, U.S. Department of Energy began using a new data collection system which encompasses a method to ascertain the amount of product reclassified during the production phase. So that there will be no double counting of these volumes, they are subtracted from the total domestic products supplied.

/6 API estimate; includes lease condensate.

/7 Includes Unaccounted-for crude oil, Processing gain and Field Production of other hydrocarbons and alcohol.

/8 Data do not include oil imported for the Strategic Petroleum Reserve (SPR) nor crude oil stocks held in the SPR.

/9 Represents "Input to crude oil distillation units" as a percent of "Operable capacity".

/10 Derived by interpolating API weekly stocks data.

/R Revised.

/* Included in motor gasoline.

/** Includes finished leaded, finished unleaded, and motor gasoline blending components stocks.



Monthly Statistical Report

Prepared by the Finance, Accounting, and Statistics Department

Vol. 14, No. 9

OCTOBER 17, 1990

SEPTEMBER 1990

SUMMARY

September's total deliveries dropped nearly 7 percent from August's unusually strong levels, substantially more than the seasonal decline typically observed as the summer driving season ends. Deliveries in recent years have averaged a decline of 2 to 3 percent from August to September, before the main part of the heating season gets underway—which typically adds half a million B/D to overall deliveries versus the rest of the year.

However, the size of the month-to-month drop seems to be mostly a retreat from unusually strong deliveries in August; though hints of reduced consumption in response to higher prices are apparent for some fuels, total deliveries, when compared against a year ago, declined only 0.3 percent. The drop was essentially in line with the pre-August year-to-date decline trend of about half a percent (adjusted for warm winter weather early in the year).

While gasoline deliveries' decline of 1.5 percent was a bit more than the prior trend, distillate deliveries increased an above-trend 2.7 percent. Deliveries of kerosine jet fuel and residual fuel oil also rose, though residual fuel oil was up less

than in previous months; deliveries of "other oils" reversed their recent prior increases.

Meanwhile, total imports, though roughly equal to those of last September, were down nearly 1 million B/D from levels of recent months, in part a lagged effect of the international embargo of Iraqi oil. Refinery runs continued high through most of September, with strong gasoline production, up about 3 percent over a year ago, boosting August's below-average inventories to near-typical levels by the end of the month. Distillate stocks rose 7 million barrels to 134 million barrels, a level slightly above average for September.

As a result of high refinery runs and the dip in crude oil imports, crude stocks fell a substantial 20 million barrels. Though, since the end of July, inventories of crude oil have dropped by 27 million barrels, they still were roughly 20 million barrels above the average level for recent Septembers. Domestic crude oil production continued to fall, dropping more than half a million B/D or 7.2 percent from last September. Both the lower 48 and Alaska shared in the decline.

PRODUCT SUPPLIED^{1/}

Gasoline

DELIVERIES DROP 1.5 PERCENT.

Gasoline deliveries fell 1.5 percent in September. Though it would be possible to ascribe

this greater-than-typical decline solely to the inherent variability of monthly deliveries data, with average retail prices for the month up roughly 20% from July's levels, we believe that some demand response to higher prices may be apparent for gasoline.

Retail gasoline prices, which increased about 20 cents per gallon in August, rose roughly another 5 cents through the end of September—a smaller increase than that of crude oil, the price of which, despite volatile swings, continued to trend sharply upward. Starting at mid-June, when world crude prices began to rise as OPEC's pre-invasion production agreement was taking shape, cumulative increases in representative crude prices amounted to 10 cents a gallon by the time of the invasion, 27 cents by the end of August, and 56 cents by the end of September.

Based on historical relationships, we estimate that the increase in retail prices over the past two months would have led to a short-term response in consumption amounting to a 0.5 to 1 percent decline from levels which otherwise would have occurred. As it turned out, gasoline deliveries for the month

were down substantially from the prior month's strong level—down more than 8 percent versus a typical seasonal drop of 5 or 6 percent. The year-to-year drop, though much smaller, still slightly exceeded the 0.9 percent decline for the year to date through July. Deviations of half a percent are well within the range of variability of monthly deliveries data, so September's deliveries decline can at best be said not to contradict the conclusion that some response to higher prices may be occurring.

Part of the demand response to higher prices likely also took the form of shifts among motorists' grade choices. Thus, premium unleaded, which had accounted for 22 percent of gasoline sales in July, has likely lost a point or two of market share to other grades.

	API ESTIMATES SEPTEMBER		YEAR-TO-DATE	
	Million B/D	Percent Change	Million B/D	Percent Change
Total domestic deliveries	16.7	(0.3)	17.0	(0.8)
Crude production ^{2/}	7.0	(7.2)	7.2	(5.9)
Total imports ^{3/}	8.0	0.2	8.5	5.8
Stocks (million bbl) ^{4/}	1,127	3.4	na	na

Distillates
CONTINUING
ABOVE TREND.

Distillate deliveries in September continued near August's unusually strong levels and rose 2.7 percent, year to year. This compares with the trend prior to Iraq's invasion of Kuwait, when year-to-date deliveries on a weather-adjusted basis had averaged only slightly ahead of a year ago (though actual deliveries had declined about 2 percent for the period). This suggests that the additions to storage by distributors and end users indicated in August's data may have continued in September.

Though September's deliveries were relatively strong for this time of year, in fact, September is normally one of the lower months of the year for distillate deliveries, averaging about 10 percent below annual levels. The peak of the heating season, December through February, has averaged about 25 percent above summer months in recent years.

Though annually, distillate deliveries average about half the volume of gasoline deliveries (which are seasonally higher during the summer months), the greater seasonal variation of heating oil and other heating-related petroleum fuels mean that total U.S. petroleum deliveries have averaged half a million B/D higher during the heating season than for the rest of the year.

Worldwide, seasonal variation tends to be greater, due to larger markets for heating fuels in proportion to gasoline. For the "non-communist" world, deliveries have averaged 2 to 3 million B/D higher over the fourth and first quarters than in the remainder of the year. Therefore, while the U.S. accounts for about a third of these nations' petroleum consumption, it only accounts for about a fifth of the seasonal variation.

Residual Fuel Oil
DELIVERIES RISE,
BUT LESS THAN
FOR PRIOR MONTHS.

Residual fuel deliveries were up nearly 3 percent in September, a slower rate of growth than the 8 percent seen on average during the previous four months. Despite this growth, deliveries were still down 4.4 percent over the first 3 quarters. The moderating increases in residual fuel supplied during September accompanied modest increases in electricity generation and came with higher prices (which at month's end, were more than 75 percent higher than at the end of July).

Electricity generation was up by about 3 percent nationwide, but grew at a slightly slower rate in the New England and Mid-Atlantic states (typically heavy users of residual fuel). However, the beginning of a scheduled year-long shutdown at two nuclear facilities in Florida (a state whose utilities consume more resid than any other state except New York) could have contributed to increased fossil fuel burning in the state.

A June 1989 Energy Department report estimated that the short term potential for fuel switching from residual fuel to natural gas was (at that time) as much as 200 thousand B/D. By the time of the Iraqi invasion of Kuwait, however, that potential was no doubt lower. Presumably, because natural gas enjoyed a price advantage over resid even before the current crisis, most users with the ability to do the easiest switching had already done so. The 100 thousand B/D drop in resid deliveries over the first seven months of the year was due, at least in part, to fuel switching by industrial and utility users.

The potential for fuel switching could have been reduced further by seasonal factors, since natural gas for electric utility use is less readily available during the fall. Nevertheless, compared with the trend over the previous four months, September deliveries were off by about 50 thousand B/D, a possible indication of some further switching and conservation.

Kerosine Jet Fuel
COMMERCIAL,
MILITARY USE
UP FOR SEPTEMBER.

Deliveries of kerosine jet fuel increased by 4 percent in September—a rate slightly below what would be expected given estimated growth in airline travel and increased military fuel deliveries. While the deliveries increase accompanied higher jet fuel prices, a variety of airline incentives encouraging September travel helped spur travel during the month. There were also above-normal military deliveries apparently used to replenish stocks drawn down during the August airlift to the Persian Gulf. These increased military deliveries accounted for nearly two-thirds of the increases seen in the month.

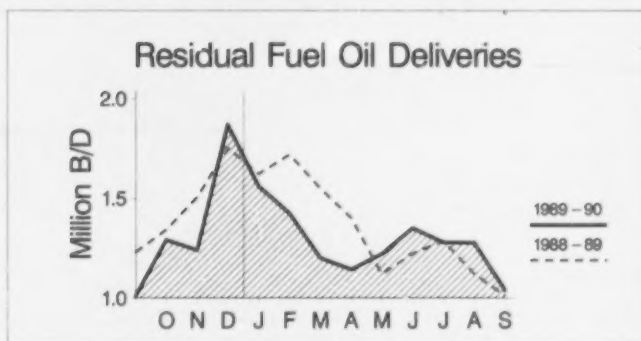
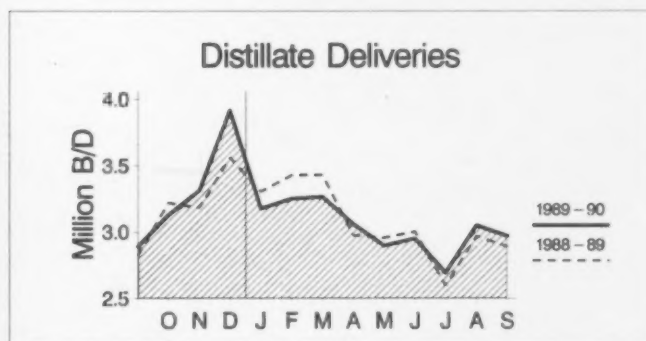
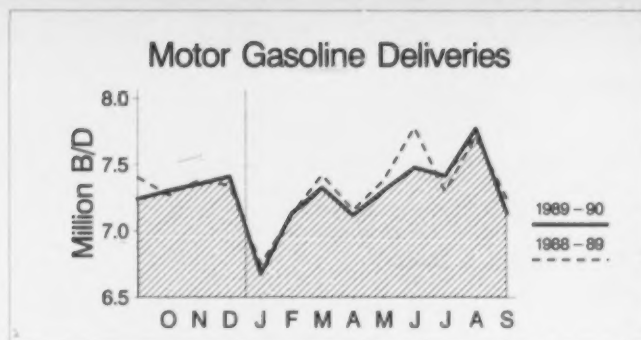
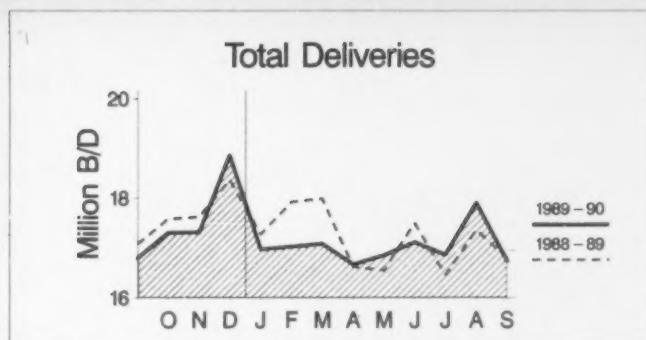
Domestic airline passenger travel has been sluggish in recent months. Adding to this sluggishness, many airlines announced fare increases following the recent rise in jet fuel prices. However, accompanying these fare increases, many airlines offered an assortment of discounts for immediate travel. Preliminary industry data on miles flown show growth at about 7-8 percent in September. As has been the case throughout the year, international flights continue to be responsible for much of the growth.

The Defense Fuel Supply Center reports that military acquisitions of kerosine-type jet fuel were up during the month. Much of the increase was met under existing contracts, (which, prior to the invasion, were reportedly being underdrawn by 30-35 percent of what was allowed), but fuel was also obtained through "supplementary" contracts. Based on this information and assuming that draws on "business-as-usual" contracts were 100 percent of what was allowed during September, military deliveries of kerosine jet fuel on these contracts increased by 22-25 thousand B/D. Supplemental contracts provided an additional 11-12 thousand B/D during the month for a total estimated at 33-37 thousand B/D.

Naphtha-type jet fuel deliveries were up by about 50 thousand B/D (33 percent) over levels seen as recently as July. About two-thirds of the increase was satisfied through draws on existing contracts, with the remainder being satisfied by supplemental contracts.

Other Oils
DELIVERIES REVERSE
PRIOR INCREASES.

Deliveries of "other oils", after two months of year-to-year increases, weakened substantially in September. Following increases of about 5 percent in July and 2.5 percent in August, deliveries for the month fell 2.0 percent. With increases that have averaged about 2 percent since April, September's decline was a clear departure from prior patterns, and possibly weaker than might have been expected.



SUPPLY^{1/}

Production

CRUDE OIL'S DECLINE CONTINUES.

Domestic crude oil production continued to decline in September, falling about 545 thousand B/D or 7.2 percent. In the lower 48, crude oil output dropped 342 thousand B/D or 6 percent, about in line with the year-to-date average, to 5.3 million B/D. In Alaska, about half of the 200 thousand B/D production decline was due to this summer's maintenance and upgrading projects to increment production.

Well completions showed continued year-to-year increases in the third quarter, rising about 9 percent, according to API's recently-released estimates. Oil completions have been gradually rising over the past year and a half from levels only about one quarter of those of the early 1980s. For the third quarter, they increased an estimated 19 percent year to year, with gains in both exploratory and development drilling. Even so, completions for the past twelve months of about 12,000 contrast with over 40,000 in 1981 and 36,000 as recently as 1985—when lower 48 crude oil production was nearly 2 million B/D higher than currently. Third quarter gas completions rose an estimated 12 percent, with the increase in development drilling outweighing a drop in exploratory wells.

Imports

DOWN CLOSE TO 1 MILLION B/D FROM PRIOR MONTHS.

After growing by close to 7 percent over the first 8 months of 1990, imports were essentially flat in September. With about a 45 day transit time for American-bound shipments coming from the Middle East, most of the crude leaving Iraq and Kuwait before the blockade is likely to have arrived by mid-

September. At a little less than 8.0 million B/D, total imports were nearly a million barrels a day below July levels. Crude oil imports decreased from 6.8 million B/D in July to 6.6 million B/D in August and 6.0 million B/D in September.

Imports of finished gasoline slipped 18 thousand B/D to about 300 thousand B/D, at the lower end of the range for recent Septembers and a reflection of greater demand for incremental supplies outside the U.S. Distillate imports rose 40 thousand B/D to about 290 thousand B/D, near the upper end of their range for the same month in recent years. Meanwhile, with higher domestic output and high inventories, residual fuel oil imports dropped by more than 100 thousand B/D to 337 thousand B/D, their lowest level since March.

America has been getting relatively more of its crude than its products from Eastern Hemisphere countries. Through July of this year, about 57 percent of product imports (and nearly 80 percent of distillate imports) had come from the Americas (primarily Venezuela, the Virgin Islands, and Canada) while about 63 percent of crude imports had come from Eastern Hemisphere nations.

Refinery Operations

HIGH UTILIZATION CONTINUES IN SEPTEMBER.

The summer's high refinery activity continued strong into September. Input to distillation units rose 3.1 percent, year to year, while utilization of capacity in actual operation is estimated to have continued at around 95 percent, close to if not at the apparent practical maximum. Utilization of reported capacity was 92.4 percent for the month, up from 88.4 percent a year ago.

While gasoline output typically declines from August to September, September's output remained at nearly the same level as the prior month as gasoline inventories were replenished

to levels closer to average for this time of year. Gasoline output rose 2.9 percent over last September's level, while kerosine jet fuel production rose 9.4 percent to over 1.3 million B/D. Though residual fuel oil yields were about the same as in prior months, output increased more than 10 percent from lower-than-typical levels a year ago. With distillate inventories slightly above average for this time of year, output of that product, though still relatively strong, rose only 0.3 percent.

Inventories

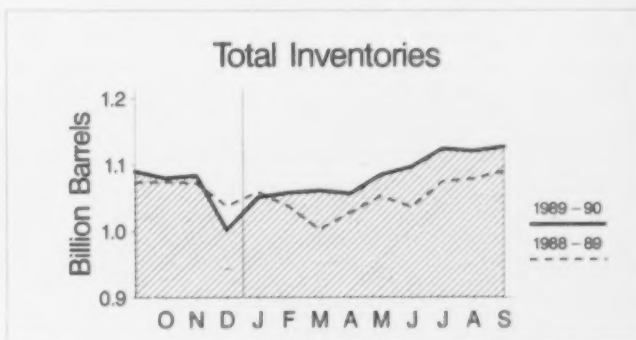
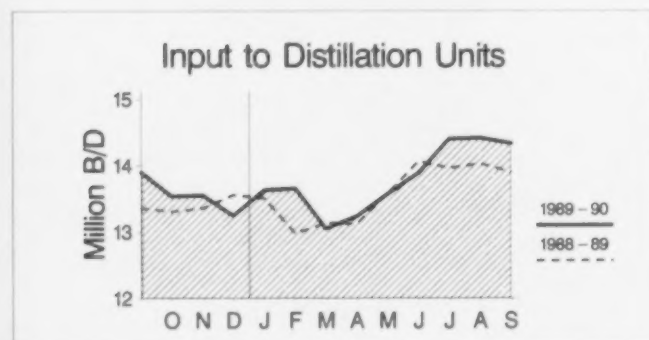
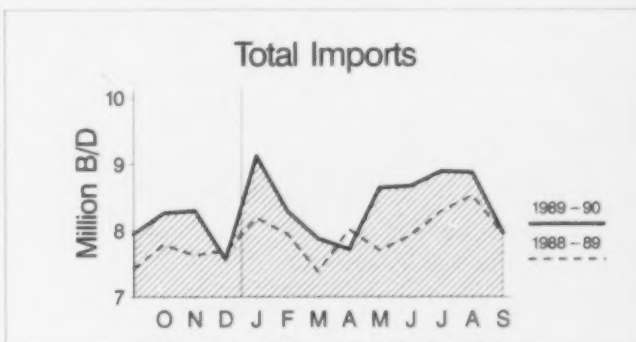
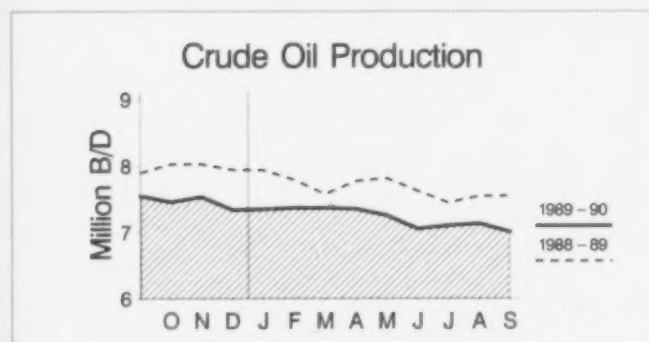
CRUDE STOCKS FALL 20 MILLION BARRELS.

Total inventories rose 7 million barrels during September, about half the recent-year average for the month. With the month's strong refinery runs and the dip in crude oil imports, crude oil stocks, in particular, fell a substantial 20 million barrels. Although crude inven-

tories have fallen by 27 million barrels in the past two months, at the end of September they still stood at 352 million barrels, roughly 20 million barrels above the average of the previous five Septembers.

Distillate stocks increased a near-typical 7 million barrels for the month. At 134 million barrels, they were about 4 million barrels above the average September level of recent years. Gasoline stocks rose 14 million barrels from August's below-average level to 225 million barrels, close to typical recent September levels.

Residual fuel oil inventories, which rose another 2 million barrels during September, were at their highest level for the month in eight years, the result of strong refinery runs which more than counterbalanced the rise in deliveries and decline in imports.



- 1/ Total supply, i.e., production plus imports adjusted for net stock change is equal to total products supplied from primary storage. Total products supplied from primary storage less exports is equal to total domestic products supplied. Information contained in this report is derived from information published in the API Weekly Bulletin and is based on historical analysis of the industry. All data reflect the most current information available to the API and include all previously published revisions.
- 2/ Includes lease condensate.
- 3/ API data do not include crude oil imported for the Strategic Petroleum Reserve (SPR) nor crude oil stocks held in the SPR (according to the U.S. Department of Energy, the SPR held approximately 590 million barrels as of September 30, 1990).

ESTIMATED UNITED STATES PETROLEUM BALANCE
(Daily Average in Thousands of 42 Gallon barrels)

Products Supplied/Supply From Primary Storage	SEPTEMBER			YEAR-TO-DATE		
	1990 ¹	1989 ²	% Change	1990 ^{3M}	1989 ²	% Change
Products Supplied:						
Total motor gasoline	7,131	7,240	(1.5)	7,262	7,319	(0.8)
Finished leaded motor gasoline/*	340	797	(57.3)	415	903	(54.0)
Finished unleaded motor gasoline/*	6,791	6,443	5.4	6,847	6,416	6.7
Naphtha-jet	199	200	(0.5)	181	206	(12.1)
Kerosine-jet	1,369	1,316	4.0	1,306	1,253	4.2
Distillate fuel oil	2,968	2,889	2.7	3,032	3,057	(0.8)
Residual fuel oil	1,039	1,010	2.9	1,277	1,336	(4.4)
All other oils ⁴	4,159	4,244	(2.0)	4,071	4,123	(1.3)
Reclassified ⁵	-128	-104	23.1	-106	-139	(23.7)
Total domestic products supplied	16,737	16,795	(0.3)	17,023	17,155	(0.8)
Exports	749	655	14.4	761	830	(8.3)
Total products supplied	17,486	17,450	0.2	17,784	17,985	(1.1)
Supply:						
Domestic production:						
Crude oil ⁶	7,004	7,548	(7.2)	7,219	7,671	(5.9)
Natural gas liquids	1,433	1,480	(3.2)	1,489	1,583	(5.9)
Other supply ⁷	1,305	853	53.0	1,078	931	15.8
Total domestic supply	9,742	9,881	(1.4)	9,786	10,185	(3.9)
Imports:						
Crude oil, total ⁸	6,020	5,969	0.9	6,222	5,747	8.3
Canadian	697	668	4.3	643	641	0.3
Other	5,323	5,301	0.4	5,579	5,106	9.3
Products, total	1,941	1,975	(1.7)	2,236	2,246	(0.4)
Residual fuel oil	337	454	(25.8)	540	638	(15.4)
Other	1,604	1,521	5.5	1,696	1,608	5.5
Total imports	7,961	7,944	0.2	8,458	7,993	5.8
Total supply	17,703	17,825	(0.7)	18,244	18,178	0.4
Stock change, all oils	217	375	*****	460	193	*****
Refinery Operations						
Input to crude oil distillation units	14,330	13,898	3.1	13,797	13,588	1.5
Operable capacity	15,516	15,722	(1.3)	15,522	15,689	(1.1)
Refinery utilization (%) ⁹	92.4	88.4	4.5	88.9	86.6	2.7
Crude oil runs	14,151	13,791	2.6	13,622	13,431	1.4
	1990		1989 ²	% Change from		
Stocks (millions bbls.)	Sep. 30 ¹⁰	Aug. 31 ¹⁰		Previous Month	Year Ago	
Crude oil ⁸	352.8	372.5	334.9	(5.3)	5.3	
Unfinished oils	112.1	111.4	107.1	0.6	4.7	
Total motor gasoline/*	224.7	210.6	226.7	6.7	(0.9)	
Finished leaded motor gasoline/*	11.0	10.3	20.6	6.8	(46.6)	
Finished unleaded motor gasoline/*	172.9	162.4	164.9	6.5	4.9	
Naphtha-jet	6.1	5.9	6.8	3.4	(10.3)	
Kerosine-jet	42.6	41.9	41.1	1.7	3.6	
Distillate fuel oil	134.2	127.4	123.2	5.3	8.9	
Residual fuel oil	51.1	49.4	49.4	3.4	3.4	
All other oils	203.6	201.6 _R	201.1	1.0	1.2	
Total all oils	1,127.2	1,120.7 _R	1,090.3	0.6	3.4	

/1 Based on API estimated data converted to a monthly basis.

/2 Source: U.S. Department of Energy.

/3 January-July, DOE, August-September, API

/4 Includes crude losses.

/5 Beginning with January 1981, U.S. Department of Energy began using a new data collection system which encompasses a method to ascertain the amount of product reclassified during the production phase. So that there will be no double counting of these volumes, they are subtracted from the total domestic products supplied.

/6 API estimate; includes lease condensate.

/7 Includes Unaccounted-for crude oil, Processing gain and Field Production of other hydrocarbons and alcohol.

/8 Data do not include oil imported for the Strategic Petroleum Reserve (SPR) nor crude oil stocks held in the SPR.

/9 Represents "Input to crude oil distillation units" as a percent of "Operable capacity".

/10 Derived by interpolating API weekly stocks data.

/R Revised.

/* Included in motor gasoline.

/** Includes finished leaded, finished unleaded, and motor gasoline blending components stocks.